

SPECIFICATION MANUAL

January 5, 2026

INTERIOR RENOVATIONS TO **HUDSON CAMPBELL SPORTS AND FITNESS CENTER**

455 Massachusetts Street
Gary, IN 46402
(Project #25008)

MAYOR EDDIE MELTON

CITY OF GARY, INDIANA

ARCHITECT:
VAVREK ARCHITECTS, INC.
1522 119th Street, Suite 2
Whiting, IN 46394
219.473.7981
219.473.1609 (fax)

DOCUMENT 00010

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INSTRUCTIONS TO BIDDERS

1. Bids shall be prepared in accordance with the instructions contained herein.
2. The Bid Documents consist of the following:
 - i. The contract documents identified as "Interior Renovations to Hudson Campbell Sports and Fitness Center" as prepared by Vavrek Architects, Inc. plans dated 01-05-2026 and Specification Manual dated January 5, 2026.
 - ii. All Addenda issued prior to the date of bid opening.
 - iii. Contract between Owner and Contractor AIA Document A101 – 2017.
 - iv. General Conditions of the Contract for Construction AIA Document A201-2017.
3. Each Bidder by submitting his Bid represents that he has read and understands the Bid Contract Documents and referenced material. Failure to read and to understand the Bid Documents shall in no way entitle the Bidder to additional consideration, compensation or relieve the Bidder from any obligation with respect to his Bid or to the Contract. Each Bidder, and their Subcontractors, if any, must possess all appropriate and required licenses or other permits to perform the work as identified in Contract Documents. Upon request, each bidder shall furnish the Owner with evidence demonstrating possession of the required licenses or permits. Failure to submit such evidence to the City of Gary satisfaction may result in rejection of the Bid.
4. Bidding Documents may only be obtained on or after January 5th, 2026 through Reprographic Arts, Inc. 1017 Franklin Street, Michigan City, IN 46360, Phone 219-872-9111. Interested bidders should contact Reprographic Arts to obtain a set of the Bidding Documents electronically. Printed sets can be obtained through Reprographic Arts, costs of which will be paid by the bidder. Bidding contractors are responsible for ALL of the bidding Documents as described in Instructions to Bidders. Addendums and other pertinent information regarding the bids will only be sent to the bidders registered with Reprographic Arts.

Copies of the Bidding Documents may be examined at Reprographic Art, Inc. website raplanroom.com.

5. Submit **two** copies of all Bids on the Bid Proposal Form provided.
6. Bid Proposal submission includes the following documents:
 - a. Contractors Bid for Public Works, Form No. 96 including non-Collusion affidavit and Part 2 questionnaire and financial statement.
 - b. No Investment in Iran Certification.
 - c. Indiana Legal Employment Declaration, E-verify Form.
 - d. Bid Bond or Certified Check.
 - e. Bidder's current Affirmative Action Program.

1. Each bidder must file, as part of the bid documents, an Affirmative Action Program for implementing the policy of Gary's Affirmative Action Ordinance #4722 with his or her bid. This should be submitted on company letterhead. The Affirmative Action Program must include specific goals and timetables for the employment and training of minorities, and for the employment and training of lower income residents of the project area.
- f. Required MWBE Subcontractor Commitment Form.

7. The bidder shall:

- a. Fill in all blanks by typewriter or by hand in ink.
- b. Contractor may submit a bid of one or all bid packages listed in the bid form. Bid packages not submitted shall be marked as "N/A" in the bid form.
- c. All required Alternates must be completed indicating the difference in Bid Price by adding to or deducting from the base bid with dollars or state "NO CHANGE IN COST". If no amount is stated, then the Owner has the option to accept the Alternate at no change in cost or deem the Bid as non-responsive which shall be cause for rejection of the Contractor's entire bid, whatever is in the Owner's best interest. The owner reserves the right to accept or reject any or all bids on alternates, in whole or in part, and in any order.
- d. Voluntary Alternates will not be considered.
- e. All dollar figures shall be expressed in words and numbers, written words shall govern in the case of discrepancy.
- f. When the Bidder is a corporation, the Bid Proposal Form must be signed in the name of the corporation by a duly authorized officer or agent of the corporation with his or her addresses and telephone number shown. Affix the corporate seal. Such officer or agent must present legal evidence that he or she has lawful authority to sign the Bid Proposal Form and that the corporation has a legal existence. In the event that any corporation, organized and doing business under the laws of any foreign state, is the successful Bidder, such corporation shall present evidence, before a contract is executed, that it is authorized to do business in the state of Indiana.

When the Bidder is a partnership or limited liability company, the individual names, addresses and telephone numbers of all of its partners or members shall be written out and shall be signed in full, but the signers may, if they choose, describe themselves in addition as doing business under a firm name and style.

When sole proprietorship, sign in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature and affix seal.

When the bidder is a Joint Venture, provide signature of each party of the joint venture under their respective seals in a manner appropriate to such party as described above, similar to requirements for partnerships.

- g. A bid response to any specific item of the bid with terms such as “negotiable”, “will negotiate” or similar will be considered as non-compliance with that specific term.
8. Bids will be received until Wednesday, January 21st, 2026, at 9:00 AM CST at the City of Gary, 401 Broadway, Gary, Indiana. No bids will be accepted after that time. Bids will be opened and read aloud at a Board of Public Works and Safety Meeting at Hudson Campbell Sports and Fitness Center at 10:00 AM on the same date, 455 Massachusetts Street, Gary Indiana.
9. Bids shall be delivered in a sealed opaque envelope to:

City of Gary
Division of Public Works, Ste. 105
401 Broadway
Gary, Indiana 46402
(219) 881-1310

Envelope shall be marked “SEALED BID FOR INTERIOR RENOVATIONS TO HUDSON CAMPBELL”. Mailed bids shall be inside a separate mailing envelope.

10. Any alteration or erasure of items inserted on the bid form shall be initialed by the bidder.
11. Bidder may withdraw their Bid, by written request at any time before bid closing.
12. Bid Bond:
 - a. The Bidder shall submit with the Bid a Certified Check or Bid Bond written on AIA Document A310, Bid Bond. The attorney-in-fact who executes the bond shall affix a certified and current copy of the power of attorney. Bonds shall be written by a surety with a rating A VIII or better by A.M. Best Insurance Guide. Bonding Company shall be licensed in the State of Indiana. The Bid Security shall be for not less than ten percent (10%) of the sum of the Base Bid and all add Alternates.
 - b. Endorse Bid Bond or Certified Check payable to the Controller of the City of Gary as obliged, signed and sealed by the principal (contractor) and surety.
 - c. The Owner will retain the Certified Checks or Bid Bonds of Bidders under consideration of award until a Contract is executed with the lowest responsible Bidder, and the Performance and Labor and Material Payment bonds and requisite evidence of liability insurance coverage are delivered.
 - d. Bid Security of all except the two lowest, responsive, responsible bidders may be retained by the Commission for a period of thirty (30) days for all bidders. The remaining bid securities will be returned after the successful bidder has executed the contract, posted bond, and provided required insurance certificates of insurance. If the contract is not executed, any bidder whose bid security has been retained may, after sixty (60) days

following the opening or the bids, request return of his bid security, providing he has not been notified of acceptance of his bid.

- e. Bid Security is subject to forfeiture if a bid is withdrawn during the time period bids are to be held.

13. Subcontractor List:

- a. Bidders shall include with their bid a complete subcontractor list stating all subcontractors to be awarded contracts on this project. Note: Only one subcontractor shall be assigned to each category or trade.

14. The Owner shall reject bids that:

- a. Arrive after the stated time for receipt of the bids.
- b. Are received by oral, telephonic, telegraphic or electronic means.
- c. Are not accompanied by a required bid security.
- d. Are not completed in accordance with these Instructions.
- e. Materially vary from the requirements of the Bid Documents.
- f. Does not include a subcontractor list.

15. Bid proposals may be withdrawn by the Bidders prior to the time fixed for the opening of Bids, but may not be withdrawn for a period of sixty (60) days after the opening of Bids.

16. By submitting a bid, the Bidder represents that it can complete the work using standard construction means and methods within the Construction Duration included in the Bid Documents.

17. Responsibility of Bidders will be determined based on the information submitted on Indiana Form No. 96. This shall clearly show the bidder's financial resources, his construction experience, his organization, and equipment available for work contemplated. Plus, additional information that may be determined in any independent investigation the Owner may conduct. The Qualification Statement is part of the Bid Package. The bidder must show experience with similar projects and have a Bonding Company rating of A- or better.

18. The successful contractor and all subcontractors shall have a license to work in the City of Gary.

19. Out of state contractors shall obtain a Certificate of Authority from the State of Indiana in accordance with Indiana Code 23-1-49-1. Proof of payment of Indiana Gross Tax shall be submitted by out of state contractors before final payments can be approved.

20. Within ten (10) working days after Notice of Award and receipt of the Contract by the selected Bidder, the Bidder shall deliver to the Architect:

- a. Separate Performance and Labor and Material Payment Bonds written on AIA Documents A312, in the amount of one hundred percent (100%) of the Contract sum. The attorney-in-fact who executes the bond shall affix a certified and current copy of the power of attorney.
- b. An insurance certificate evidencing the issuance of insurance policies in accordance with the requirements stated in the Bid Documents.
- c. A properly executed Contract. The Owner shall execute the Contract upon receipt of conforming documents.

21. If a Bidder to whom a Contract is awarded fails to enter into a contract with the Owner within ten (10) business days after receipt of Contract, or fails to furnish the required Payment and Performance Bonds and an Insurance Certificate demonstrating the required insurance coverages, the Bidder will be considered as having abandoned the bid and the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty for the delay and loss caused the Owner by reason of such failure on the part of the Bidder. Bidder acknowledges that Owner will suffer damages which are certain to occur but are difficult to calculate.

22. The Contract will be written on AIA Document A101 - 2017, Standard Form of Agreement between Owner and Contractor.

23. The Owner shall have the right to accept Alternates, in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

24. The Owner shall have the right to waive informalities or irregularities in a Bid received and to accept the Bids, which, in the Owner's Judgment, are in the Owner's best interest.

25. The Bidder shall carefully examine study and compare the Bid Documents with each other and with the site and local conditions, and shall report any errors, inconsistencies and ambiguities, in writing, to the Architect at once.

26. Bidders requesting clarification or interpretation of the Bid Documents shall submit a written request by electronic mail to the office of the Architect, Vavrek Architects, Inc., Email to Vavrek Architects at tvavrek@vavrek-inc.com. All electronic written requests shall use "**Interior Renovations to Hudson Campbell**" in the subject line of the electronic mail. Requests shall include reference to Project Manual Section and Paragraph number or Drawing page and Detail number.
 If a response is deemed necessary by the Architect, then an Addendum will be issued. Bidders shall not rely on any method other than Addendum for changes, interpretations or clarifications to the Bidding Documents. **The deadline for receipt of Bid Document RFI's shall be five (5) days prior to Bid Day.**

27. Addenda may be issued during the bidding period. Addenda will be sent to known bidders and posted on Reprographic Arts plan room. Addenda become part of the Contract Documents. Include resultant costs in the Bid Price. It is the responsibility of the bidders to make inquiries as to the addenda issued. Failure to acknowledge receipt of all addendums on the bid form may be grounds for disqualification /rejection of your bid.

28. Product Substitution: Where bidding documents stipulate particular products, substitution requests will be considered by Architect up to (ten) 10 days before receipt of bids, Approved substitutions will be identified by Addenda. Bidders shall include in their bid, changes required in the Work to accommodate such approved substitutions.
29. Completion Time: All work shall be substantially complete within the amount of days specified under "Contract Time" in the Bid Form. At this point, the owner may use or occupy the project for its intended purpose.
30. The general contract (and all independent subcontracts, i.e., subcontracts not included within a general contract and regardless of tier) will be awarded to the lowest responsible and responsive bidder complying with the conditions and requirements provided in these Instructions, the bid forms and other bid documents. A "responsible and responsive" bidder is a bidder demonstrably possessing the skill, ability and integrity necessary to faithfully perform the work called for by the contract, based upon a determination of the competent workmanship and financial soundness in accordance with Indiana Code 36-1-9-3 or any successor statute. An "eligible" bidder is a bidder who is not debarred from bidding under any applicable law, and which shall certify that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the project.
31. "Completion Time": All work shall be substantially complete within the amount of days specified under Contract Time in the Bid Form.
32. "Final Completion" to occur not less than thirty (30) calendar days from the date of Substantial Completion. "Final Completion" is that date that work is completed and ready for final payment.
33. Upon signing the contract between the Contractor and the City of Gary, the work to be performed will start upon the Notice to Proceed.

END OF SECTION

SECTION 00250

LEGAL NOTICE/ INVITATION TO BID

OWNER: City of Gary
401 Broadway
Gary, IN 46402

PROJECT: Interior Renovations to Hudson Campell Sports and Fitness Center
455 Massachusetts Street
Gary, IN 46402

Sealed bids for Interior Renovations to Hudson Campbell will be received by the City of Gary until 9:00 AM CST on Wednesday, January 21st, 2026. Bids will be opened and read aloud at a Public Works and Safety Meeting at 10:00 AM CST on the same date, at Hudson Campbell Sports and Fitness Center, 455 Massachusetts Street, Gary, Indiana. Bids delivered after this time will be returned unopened.

Bids shall be delivered to: City of Gary
Division of Public Works, Ste. 105
401 Broadway
Gary, IN 46402
(219) 881-1310

The project consists of Interior Renovations to Hudson Campbell Sports and Fitness Center at 455 Massachusetts Street, Gary, IN 46402.

A Pre-Bid Meeting will be held on Wednesday, January 14th at 2:00 PM CST at the project site. All bidders are strongly urged to attend this Pre-Bid meeting.

Bidding Documents may only be available on or after Monday, January 5th, 2026, through Reprographic Arts, Inc. 1017 Franklin Street, Michigan City, IN 46360, Phone 219-872-9111. Interested bidders should contact Reprographic Arts to obtain a set of the Bidding Documents. Printed sets can be obtained through Reprographic Arts, costs of which will be paid by the bidder. Bidding contractors are responsible for ALL of the bidding Documents as described in Instruction to Bidders. **Addendums and other pertinent information regarding the bids will only be sent to the bidders registered with Reprographic Arts.**

Preview of the Bidding Documents will be available at Reprographic Arts, Inc. website at raplanroom.com.

Bids must be in complete accordance with the **“INSTRUCTIONS TO BIDDERS SECTION 00100”**.

Bids will not be considered unless they are accompanied by the following documents at the time of the Bid Opening:

1. Fully completed and executed State of Indiana Form 96.

2. A fully completed and executed Non-Collusion Affidavit of Prime Bidder, a copy of which is included as part of Form 96.
3. Bid Bond.
4. Bidder's current Affirmative Action Program.
5. Required MWBE Subcontractor Commitment Form.

The form must be fully completed and executed. No bids will be considered which are not based on these documents.

A certified check payable to the Controller of the City of Gary or a bid bond in an amount equal to ten (10) percent of the bid amount must accompany each bid. The Bidder awarded the contract will be required to provide separate Performance and Labor Material Bonds, each in the amount of one hundred (100%) percent of the Contract amount before commencing work. The Performance Bond and the Payment Bond shall remain in effect throughout the entire construction period.

Bid security of all except the two lowest responsive and responsible bidders will be returned within fourteen (14) days after the bid opening. The remaining bid securities will be returned after the successful bidder has executed the Contract, posted bond and provided required certificates of insurance. If the Contract is not executed, any bidder whose bid security has been retained may, after sixty (60) days following the opening of bids, request return of his bid security, provided he has not been notified of acceptance of his bid.

Any bid may be withdrawn prior to the scheduled time of the opening of bids or authorized postponement thereof. However, no bid may be withdrawn for sixty days after the scheduled time for opening, unless agreed to by the City of Gary.

Bidders shall include with their bid a complete subcontractor list stating all subcontractors to be awarded contracts on this project. Note: Only one subcontractor shall be assigned to each category or trade.

This project is funded in whole or in part by the American Rescue Plan Act (ARPA) Funds. The Contractor shall comply with all applicable federal, state, and local laws, regulations, and guidance governing the use of ARPA funds, including but not limited to U.S. Department of the Treasury regulations (31 CFR Part 35).

Contractor to comply with the following:

- A. Contracts for more than the simplified acquisition threshold currently set at \$150,000 must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.
- B. All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.
- C. All contracts must meet the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964- 1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment

- D. Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”
- D. Contractor and all subcontractors will be required to comply with the Davis-Bacon Act (40 U.S.C. 3141–3148) as supplemented by Department of Labor regulations (29 CFR Part 5), including paying its workers every week and paying them at the hourly rates set by the U.S. Department of Labor.
 - 1. Contractor and all subcontractors must comply with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145) as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and subcontractors on Public Building or Public work financed in whole or in part by loans or grants from the United States”).
- E. Contractor and all subcontractors will be required to pay not less than one and one-half (1½) times the basic rate of pay for all hours worked in excess of forty (40) hours in a workweek, in accordance with the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701–3708). (40 U.S.C. 3701-3708).
- F. If the Federal award meets the definition of “funding agreement” under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.
- G. Contractor and all subcontractors will comply with all applicable provisions of the federal Water Pollution Control Act and Clean Air Act.
- H. Contractor and all subcontractors must certify that they are not suspended or debarred from working on federally funded projects.
- I. Contractor and all subcontractors must certify that they will not and have not used any Federal funds to pay anyone to lobby or otherwise attempt to influence an officer or employee of any federal agency or any member, officer, or employee of Congress in connection with obtaining any Federal contract, grant, or other award of federal funds (Byrd Anti-Lobbying Amendment).
- J. Contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act.
- K. Contractor is responsible for insuring that its subcontractors comply with all of the federal requirements stated in “A” through “J”, above.

The Bidder must use good faith efforts to solicit appropriate minority and women businesses for any purchases and subcontracting work, including complying with the requirements of 45 C.F.R. Section 75.330.

Pursuant to I.C. 5-16-7.2-5, there is no wage scale provision for this project.

All Contractors must be licensed in the City of Gary. Information on licensing is available at <https://gary.gov>.

Upon signing the contract between the Contractor and the City of Gary, the work to be performed will start upon the Notice to Proceed.

The City of Gary reserves the right to accept or reject any or all bids or to waive any informalities in the bidding, should the Commission deem it to be in the public interest to do so.

END OF SECTION

SECTION 00261
SUBSTITUTION REQUEST FORM

To _____ Date: _____

Project: _____

We hereby submit for your consideration the following product instead of the specified item(s) for the above project:

<u>Section</u>	<u>Article/Paragraph (Page)</u>	<u>Specified Item</u>
_____	_____	_____

Proposed
Substitution: _____ Model: _____

Manufacturer: _____ Phone: _____

Attach complete technical data including laboratory tests if applicable.

Include complete information changes to Drawings and/or Specifications which proposed substitution require for proper installation.

Fill in blanks below, use additional sheets if necessary:

A. Does the substitution affect dimensions shown on Drawings?

B. Will the undersigned pay for changes to building design, including engineering and detailing costs caused by substitution, if any?

C. What effect does substitution have on other trades? _____

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of proposed and specified items are:

_____ Same _____ Different (explain on attachment)

The undersigned certifies that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature

Firm _____

Address _____

Telephone _____

Fax _____

For Use by Design Consultant:

Accepted Accepted as Noted

Not Accepted Received too Late

PM _____

Specifier _____

Date _____

Remarks _____

Telephone _____

END OF SECTION

SECTION 00305

BIDDER'S CHECKLIST

BIDDER PROCEDURE CHECK LIST FOR ITEMS TO BE COMPLETED AND INCLUDED IN BID PACKAGE



Have you properly and completely executed the Form No. 96 Bid Form, Including Part II Questionnaire?

Have you included your most recent financial statement?

Note that the Non- Collusion Affidavit is part of the new Bid Form and is to be notarized.

Have you reviewed and executed the No Invest in Iran Certification?

Have you completed the Indiana Legal Employment Declaration, E Verify Form?

Have you enclosed a certified check or Bid Bond? (Note: Bond must be signed by Surety and Principal)?

Have you indicated the Project Name, Bid Category No., and Description on the outside of your Bid envelope?

Have you included a copy of your current Affirmative Action Program?

Have you included a copy of the required MWBE Subcontractor Commitment Form?

Have you read and completed in its entirety the Bidder Equal Employment Practices Report?

Have you read and acknowledged receipt of the City of Gary Affirmative Action Program (Ordinance #4722) and the Gary Civil Rights Ordinance (Ordinance #4458) by signing the Civil Rights and Affirmative Action Affidavit?

Have you read and acknowledged receipt of the City of Gary Business Entrepreneurship Promotional Program (Ordinance #6972) by signing the Gary Business Entrepreneurship Promotional Program Affidavit?

Have you read and completed in its entirety the Gary Business Entrepreneurship Promotional Program Form?

Do you understand that Bidders must comply with all the requirements of the City of Gary Business Entrepreneurship Promotional Program (Ordinance #6972), unless a written Bidder's request for Waiver of Requirements of Gary Business/ Residents Employment and/or Affirmative Action and Civil Rights Polices is submitted by Bidders and granted by the efforts to comply but cannot due to circumstances beyond its control? If Bidder wants to ask the Board for a waiver, the Bidder's

Request for Waiver of Requirements of Gary Business/ Residents Employment and/or Affirmative Action and Civil Rights Polices must be completed and submitted in the Bid Package.

The Bidder's Procedure Checklist for Construction Services must be completed, signed and submitted as the first page of the bid package. The Bid Package must be bound and submitted to the City of Gary in the following order:

- a. Signed and dated Bidders Procedure Checklist.
- b. Required Bid Security in the form of a Bid Bond or Certified Check.
- c. Signed Civil Rights and Affirmative Action Affidavit.
- d. Affirmative Action Program Compliance Statement.
- e. Completed Bidder Equal Employment Practices Report.
- f. Signed Gary Business Entrepreneurship Program Affidavit.
- g. Completed Gary Business Entrepreneurship Promotional Program.
- h. If necessary, completed Bidder's Request for Waiver of Requirements of Gary Business/ Residents Employment and/or Affirmative Action and Civil Rights Policies.

Signature

Date

Company Name

SECTION 00310

BID FORM

CONTRACTOR'S BID FOR PUBLIC WORK-FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)

Prescribed by State Board of Accounts

(Amended for City of Gary)

PART I

(To be completed for all bids. Please type or print)

INTERIOR RENOVATIONS TO HUDSON CAMPBELL SPORTS AND FITNESS CENTER

Date (month, day, year): _____

1. Governmental Unit (Owner): _____

2. County: _____

3. Bidder (Firm): _____

Address: _____

City/State/Zip Code: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

IDENTIFICATION OF BID PACKAGE

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the Interior Renovations to Hudson Campbell Sports and Fitness Center, in accordance with Plans and Specifications prepared by Vavrek Architects, 1522 119th Street, Suite 2 Whiting, Indiana 46394, as follows:

BASE BID AMOUNT

Lump Sum Amount

(number): _____

(in words): _____

ALTERNATES

The following prices for Alternates are not included in the Bid Amount stated above.

ALTERNATE NO. 1: See Add Alternate #1 on sheet A-1.1.0. Provide cost for labor and material to renovate existing offices 126.0, 129.0, 130.0, and 131.0 into Vaccine Exam Room #118.0, Medical Storage #119.0, New Offices #120.0, #121.0, #122.0, and New Flex Office #123.0 as detailed in the drawings. Work to include, but not be limited to, paint, drywall, ceilings, flooring, electric, and mechanical.

ADD \$ _____ (Numerals)

Dollars (Words)

ALTERNATE NO. 1A: Keep configuration of Existing Offices 126.0, 129.0, 130.0, and 131.0 as indicated in base bid. Provide cost for labor and material to repair (match & patch) existing drywall as required and paint all walls. Provide one accent color per room.

ADD \$ _____ (Numerals)

Dollars (Words)

ALTERNATE NO. 1B: Provide cost to install new carpet (CPT) and vinyl base in the rooms indicated in Alternate #1A.

ADD \$ _____ (Numerals)

Dollars (Words)

ALTERNATE NO. 2: Provide cost for labor and material to repair (match & patch) existing drywall as required and paint all walls in Existing Offices #117.1, #132.0, #133.0, #134.0, #135.0, #136.0, #137.0, #138.0 and Existing Staff Lounge #146.0. Provide one accent color per room. Remove existing wood paneling in Offices #117.1 and #136.0, repair/ finish existing drywall and paint.

ADD \$ _____ (Numerals)

Dollars (Words)

ALTERNATE NO. 2A: Provide cost for labor and material to install new flooring for rooms described in Alternate #2. All rooms to receive new carpet (CPT) with vinyl base with the exception of Existing Staff Lounge #146.0. Existing Staff Lounge to receive new vinyl plank flooring (VPF) with vinyl base.

ADD \$ _____ (Numerals)

Dollars (Words)

ALTERNATE NO. 3: Provide cost for labor and material to repair (match & patch) existing drywall as required, and paint all walls in Existing Corridors #113.0, #114.0, #139.0, Existing Vestibule #140.0 and New Corridor #114.1. Provide one accent color per corridor.

ADD \$ _____ (Numerals)

_____ Dollars (Words)

ALTERNATE NO. 3A: Provide cost for labor and material to install new vinyl plank flooring (VPF) and vinyl base in the corridors and vestibule indicated in Alternate #3.

ADD \$ _____ (Numerals)

_____ Dollars (Words)

ALTERNATE NO. 4: Provide cost for labor and material to install solid surface material countertops in lieu of plastic laminate countertops as indicated in the drawings.

ADD \$ _____ (Numerals)

_____ Dollars (Words)

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States. I.C. 5-16-8-2. I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

CONTRACT TIME

If this bid is accepted, we will complete the work in _____ (____) calendar days from acceptance of this bid.

ACKNOWLEDGEMENT OF ALLOWANCES

Bidder acknowledges inclusion of all cash allowances identified in specification section 00500 Schedule of Allowances: _____ (Yes/No)

ACKNOWLEDGEMENT OF ADDENDA (to be completed by Bidder)

The following Addenda have been referred to and the requirements thereof included in this proposal.

Addendum #____, dated _____

Addendum #____, dated _____

Addendum #____, dated _____

Addendum #____, dated _____

The above prices shall remain in effect for acceptance within a period of forty-five (45) days from the date of bid.

PART II

(For projects of \$150,000 or more-IC 36-1-12-4)

Governmental Unit: _____

Bidder (*Firm*): _____

Date (*month, day, year*): _____

These statements are to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works project has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name & Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name & Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. (Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you would believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of all subcontracts (i.e. persons or firms outside your own firm, who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed contract, you are under a continuing obligation to immediately notify the government unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed contract? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON-COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation, or partnership represented by him, entered in such combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR GARY REDEVELOPMENT COMMISSION ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

By _____
(Name of Organization)

(Title of Person Signing)

ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

Before me, a Notary Public, personally appeared the above-named _____
and swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission Expires: _____

County of Residence: _____

NO INVESTMENT IN IRAN CERTIFICATION

No Investment in Iran. As required by IC 5-22-16.5-13, THE Contractor hereby certifies that the Contractor is not engaged in investment activities in Iran and, to the best of the Contractor's knowledge, contractor is not listed by the Indiana Department of Administration as a person determined to be engaged in investment activities in Iran.

This certification is executed and included as part of a bid proposal to the City of Gary, Indiana.

Bidder Name, Printed

Signed: _____

Printed Name: _____

Title: _____

Date: _____

INDIANA LEGAL EMPLOYMENT DECLARATION

The State of Indiana has enacted a law (I.C. 22-5-1.7) requiring all state agencies and political subdivisions request verification from their contractors that their employees are legally eligible to work in the United States. This Declaration serves as notice that all Contractors doing business with the City of Gary must, as a term of their contract:

1. Enroll in and verify the work eligibility status of newly hired employees of the contractor through the E-Verify programs (but is not required to do this if the E-Verify program no longer exists); and
2. Verify, by signature below, that the Contractor does not knowingly employ unauthorized aliens.

I, _____, a duly authorized agent of the company designated below, declare under the penalties of perjury that the designated company does not employ unauthorized aliens to the best of its knowledge and belief.

Dated this ____ day of _____, 20____

(Name of Company)

By: _____
(Authorized Representative of Company)

PLEASE SEE <https://e-verify.uscis.gov/enroll/StartPage.aspx?JS=YES> FOR INSTRUCTION AND ELECTRONIC REGISTRATION FOR E-VERIFY

CITY OF GARY LOCAL HIRING/WBE/MBE PARTICIPATION

In addition to the requirements of Gary Municipal Ordinance 6971 regarding the promotion and encouragement of Gary Business Entrepreneurship, the City requests that bids include proposals that incorporate the use of disadvantaged, women and minority owned businesses pursuant to business as allowed by Indiana law. Prospective Vendors may visit the Indiana Department of Administration, website to get M/WBE requirements at www.in.gov/idoa. The City expects bidders to set a goal of 4% Minority participation and 9% for Women participation for the project. It is the intent of City to meet or exceed the above mentioned M/WBE goals. The vendor must submit with its quote/bid a MWBE Subcontractor Commitment Form. The Form must show that there are, participating in the proposed contract, Minority Business Enterprises (MBE) and Women Business Enterprises (WBE) listed in the Minority and Women's Business Enterprises Division (MWBED) directory of certified firms located at <http://www.in.gov/idoa/2467.htm>. If participation is met through use of subcontractors who supply products and/or services directly to the Respondent, the Respondent must provide a description of products and/or services provided that are directly related to this quote/bid and the cost of direct supplies for this quote/bid. Respondents must complete the Subcontractor Commitment Form in its entirety. The form can be found at <http://www.in.gov/idoa/2352.htm>.

The City reserves the right to verify all information included on the M/WBE Subcontractor Commitment Form. A signed letter(s), on company letterhead, from the MBE and/or WBE must accompany the M/WBE Subcontractor Commitment Form. Each letter shall state and will serve as acknowledgement from the MBE and/or WBE of its subcontract amount, a description of products and/or services to be provided on this project, and approximate date the subcontractor will perform work on this contract.

By submission of the quote/bid, the Respondent acknowledges and agrees to be bound by the regulatory processes involving the State's M/WBE Program.

MBE/WBE PARTICIPATION PLAN

RFP # / Bid # / Quote # _____ DUE DATE _____
(Circle One)

RFP / BID / QUOTE NAME _____
(Circle One)

RESPONDENT _____

ADDRESS _____

CITY/STATE/ZIP _____

PHONE () _____

The following MBE and/or WBE's listed in the MWBD directory will be participating in the contract:

MBE/WBE **PHONE** **COMPANY NAME** **SCOPE OF PRODUCTS/SERVICES** **UTILIZATION DATE** **AMOUNT**

*If additional room is necessary, indicate here _____. Please attach a separate page.

THIS DOCUMENT MUST BE INCLUDED IN YOUR RESPONSE

END OF SECTION

SECTION 00325

ADDITIONAL REQUIREMENTS FOR THE CITY OF GARY

Additional Requirements for the City of Gary are attached hereto.

END OF SECTION

BIDDER EQUAL EMPLOYMENT PRACTICES REPORT

I. INSTRUCTIONS

A. EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS: This form is designed to provide an evaluation of your policies and practices relating to the extension of equal employment opportunity to all persons without regard to race, religion, color, sex or national origin.

Chapter 29, Title 7 of the Municipal Code of the City of Gary,
and the rules and regulations pursuant thereto provide for contract compliance inspection of personnel policies and practices related to any contract funded in whole or in part by the City of Gary including contracts for work, labor, services, supplies, equipment, materials, leases, concession agreements and permits.

B. BIDDER PERFORMANCE: Completion of this Bidder Employment Practice Report is one of the steps which demonstrates compliance with the City of Gary

Equal Employment Opportunity Policies. Responsibility for demonstrating compliance with these Policies by the Contractor and his Subcontractors rests with the contractor or subcontractor. Such demonstration is a prerequisite for continued eligibility for bidding on City funded contracts.

C. FILING THIS REPORT: Return this completed Report with bid documents.

AN ORIGINAL
OF THIS REPORT MUST ACCOMPANY EACH BID SUBMITTED.

II. BIDDER INFORMATION

1. REPORTING STATUS ~ a. Prime Contractor ~ b. Prime Subcontractor ~ c. Supplier ~ d. Other (Specify)
2. NAME, ADDRESS and TELEPHONE NUMBER OF BIDDER COVERED BY THIS CONTRACT:
3. NAME, ADDRESS and TELEPHONE NUMBER OF PRINCIPLE OFFICIAL OR MANAGER OF BIDDER:
4. NAME and ADDRESS OF PRINCIPAL OF BIDDER:
5. CONTRACTING CITY AGENCY (OR AGENCIES): CITY OF GARY
6. SIGNATURE and TITLE OF BIDDER'S AUTHORIZED EQUAL EMPLOYMENT REPRESENTATIVE: DATE:

EVALUATION (leave blank)

~ Compliance ~ Non-Compliance ~ Follow-Up _____

III. POLICIES AND PRACTICES

The bidder will indicate his willingness or unwillingness to comply with the requirements of the Equal Opportunity Policies of the City of Gary by encircling the applicable letter to the left of each item below. The letters are to be interpreted as follows:

- A – This is now a practice of the company.
- B – The company will adopt this policy.
- C – The company cannot or will not adopt this policy. (If “C” is circled, state reason. Use separate sheet if additional space is needed.)

It is understood that the company’s willingness to participate in the Equal Employment Opportunity Policy will be evaluated by the City of Gary.

This evaluation will directly influence our decision on the qualification of each bidder and is an integral part of your bid.

(SEE CHART ON NEXT TWO (2) PAGES)

III. POLICIES AND PRACTICES

Circle One	Items	State reasons if (C) is circled
A B C	1. The company will adopt a policy of non-discrimination on the basis of race, religion, color, sex or national origin with regard to recruitment, hiring, training, upgrading, promotion, pay, and discipline of employees or applicants for employment.	
A B C	2. The company will assign responsibility to one of its officials to develop procedures which will assure that this policy is understood and carried out by managerial, administrative and supervisory personnel.	
	Assigned Official's Name _____ Title _____	
A B C	3. The company will state its non-discriminatory policy in writing and communicate it to all of the following: a. All employees b. All recruitment sources c. All relevant employee organizations, including labor unions d. All subcontractors	
A B C	4. The company will use recruitment sources, such as employment agencies, unions, and schools, which have a policy of referring applicants on a non-discriminatory basis.	
A B C	5. The company will sponsor or finance educational or training programs for the benefit of employees or prospective employees without regard to race, religion, color, sex or national origin.	
A B C	6. The company recruiters will seek a broad recruitment base in order that a representative cross section of applications might be obtained; and will refrain from a hiring policy which limits job applicants to persons recommended by company personnel.	

III. POLICIES AND PRACTICES

Circle One	Items	State reasons if (C) is circled
A B C	7. The company will take steps to integrate any positions, departments, or plant locations which have no minority persons, including African Americans, or are almost completely staffed with one particular non-minority, ethnic, or racial group.	
A B C	8. Answer only if you are a Construction Contractor. In order to achieve an integrated workforce, the company will employ minority workers, including African Americans, in each trade and/or implement an affirmative action program satisfactory to the City of Gary	
A B C	9. The company will review its qualifications for each open job to determine whether such standards eliminate unemployed persons who could, if hired, perform the duties of the job adequately. The following qualifications should be reviewed: <ul style="list-style-type: none"> a. Education b. Experience c. Tests d. Arrest records 	
A B C	10. Residence in the City of Gary will be a qualifying criterion for employment with the Company. All reasonable efforts will be made to employ Gary residents.	
A B C	11. The company will provide that all bargaining agreements with employee organizations, including labor unions, have non-discrimination clauses requiring equal employment opportunity.	

IV. EMPLOYMENT DATA

Furnish employment data for present employees using chart enclosed in this report.

V. Indicate type of business organization; and in the case of a corporation, indicate percentage owned by minority parties.

Partnership _____

Joint Venture _____

Corporation _____ Minority ownership of shares

Sole Proprietorship (check whether minority owned)
_____ Minority Owned _____ Non-Minority Owned

In the case of a partnership or joint venture, please complete the attached Questionnaire, Page 7.

The undersigned certifies that he is legally authorized by the bidder to make the statements and representations contained in this report; that he has read all of the foregoing statements and representations and that they are true and correct to the best of his knowledge and belief. The undersigned understands that if any of the statements and representations are made knowing them to be false or there is a failure to implement any of the stated intentions or objectives set forth herein without prior notice to the City of Gary

the bidder will be subject to the loss of all future awards, and such conduct shall be deemed a material breach of the contract.

I affirm under the penalties for perjury that the foregoing representations are true.

Bidder's Full Name: _____ Date of Signing: _____

Signature: _____

Print Name and Title: _____

Signature: _____

Print Name and Title: _____

JOB CATEGORIES	ALL EMPLOYEES			MINORITY GROUP EMPLOYEES				NON-GARY RESIDENT	GARY RESIDENT		
	MALE		FEMALE	FEMALE		AFRICAN AMERICAN	LATIN AMERICAN				
	AMERICAN INDIAN	ASIAN AMERICAN		AMERICAN INDIAN	ASIAN AMERICAN						
Officials, Managers and Supervisors											
Professionals											
Technicians											
Sales Workers											
Office and Clerical											
Skilled											
Semi-Skilled											
Laborers (Unskilled)											
Service Workers											
Apprentices											
TOTAL											
Total employment from previous report (if any)											

V. PARTNERSHIP – JOINT VENTURE QUESTIONNAIRE

Name and Address of Partners or Joint Venturers	Mark "X" for Minority Member	Amount of Labor to be Supplied by each Member	Amount of Material to be Supplied by each Member	Amount of Equipment to be Supplied by each Member	Amount of Share of Net or Net of each Member
1.					
2.					
3.					
4.					

Give a brief description of the past history of the partnership or joint venture; and submit a copy of the partnership or joint venture agreement. (If none, so indicate.)

Describe any other actions taken which show that all employees are recruited, hired, trained, and promoted without regard to their race, religion, color, sex, or national origin. Use separate sheet if additional space is needed.

VI. DESCRIPTION OF OCCUPATIONAL CATEGORIES

Officials, managers and supervisors – Occupation requiring administrative personnel who set broad policies, exercise overall responsibility for execution of these policies, and direct individual departments or special phases of a firm's operations. Includes: officials; executives; middle management; plant managers; department managers and superintendents; salaried foremen who are members of management; purchasing agents and buyers; and kindred workers.

Professionals – Occupations requiring either college graduation or experience of such kind and amount as to provide a comparable background. Includes: accountants and auditors; airplane pilots and navigators; architects; artists; chemists; designers; dieticians; editors; engineers; lawyers; librarians; mathematicians; natural scientists; personnel and labor relations workers; physical scientists; physicians; social scientists; teachers; and kindred workers.

Technicians – Occupations requiring a combination of basic scientific knowledge and manual skill which can be obtained through about two (2) years of post high school education, such as is offered in many technical institutes and junior colleges, or through equivalent on the job training. Includes: draftsmen, engineering aids; junior engineers; mathematical aids; nurses; photographers; radio operators; scientific assistants; surveyors; technical illustrators; technicians (medical, dental, electronic, physical science); and kindred workers.

Sales Workers – Occupation engaging wholly or primarily in direct selling. Includes: advertising agents and salesmen; insurance agents and brokers; real estate agents and brokers; stock and bond salesmen; demonstrators; salesmen and sales clerks; and kindred workers.

Office and Clerical – Includes all clerical type work regardless of level of difficulty, where the activities are predominately non-manual, though some manual work not directly involved with altering or transporting the products is included. Includes: bookkeepers; cashiers; collectors (bills and accounts); messengers and office clerks; office machine operators; shipping and receiving clerks; stenographers; typists and secretaries; telegraph and telephone operators; and kindred workers.

Skilled – Manual workers of relatively high skill level having a thorough and comprehensive knowledge of the processes involved in their work. Exercise considerable independent judgment and usually receive an extensive period of training. Includes: the building trades hourly paid foremen and leadmen who are not members of management; mechanics and repairmen; skilled machining occupations; compositors and typesetters; electricians; engravers; job setters (metal); motion pictures projectionists; pattern and model makers; stationary engineers; tailors and tailoress; truck drivers; heavy equipment operators; carpenters; cement finishers; pile drivers; iron workers; and kindred workers.

Semi-Skilled – Workers who operate machinery or processing equipment or perform other factory-type duties of intermediate skill level which can be mastered in a few weeks and require only limited training.

Unskilled – Workers in manual occupation which generally require no special training. Perform elementary duties that may be learned in a few days and require the application of little or no independent judgment. Includes: garage laborers; car washers and greasers; gardeners (except farm) and groundskeepers; longshoremen and stevedores; lumbermen; draftsmen and wood choppers; laborers performing lifting, digging, mixing, loading, and pulling operations; and kindred workers.

Service Workers – Workers in both protective and nonprotective service occupations. Includes: attendants (hospital and other institutions, professional and personal service); barbers; chairwomen and cleaners; cooks (except household); counter and fountain workers; elevator operators; firemen and fire protection; guards; watchmen and doorkeepers; stewards; janitors; policemen and detectives; porters; waiters and waitresses; and kindred workers.

Apprentices – Persons employed in a program including work training and related instruction to learn a trade or craft which is traditionally considered an apprenticeship, regardless of whether the program is registered with a Federal or State agency.

SECTION 00012

GARY BUSINESS ENTREPRENEURSHIP PROMOTIONAL PROGRAM AFFIDAVIT

The undersigned affirms that I am duly authorized to execute and deliver this Affidavit on behalf of the Bidder acknowledging that I am familiar with Gary Business Entrepreneurship Promotional Program Ordinance No. 6972 (BEPP) and Bidder agrees to be bound by the provisions of said Ordinances, Rules and Regulations.

I affirm under penalty of perjury that the above representations are true.

Company

By: _____
Authorized Representative (Signed)

Authorized Representative (Print)

Title

GARY BUSINESS ENTREPRENEURSHIP PROMOTIONAL PROGRAM

PART A: COMPANY DATA

FIRM NAME _____ DATE _____ UNION SHOP YES _____ NO _____

PRIME CONTRACTOR _____ SUB-CONTRACTOR _____ SUPPLIER / VENDOR _____

ADDRESS _____ CITY _____ STATE _____ ZIP CODE _____

EMPLOYER ID # _____

CORPORATION _____ PARTNERSHIP _____ SOLE PROPRIETORSHIP _____

JOINT VENTURE _____ ASSOCIATION _____

If Corporation, partnership, joint venture or association, list all principals, officers, partners, shareholders, majority shareholders with more than 10% ownership share, and their current residency below. Attach second sheet if needed.

NAME

ADDRESS

CITY

STATE

ZIP

10 of 10

EMPLOYEE INFORMATION

TOTAL No. OF EMPLOYEES _____ No. OF EMPLOYEES GARY RESIDENTS _____ No. OF UNION EMPLOYEES _____

TOTAL No. OF NON-TRADE (REGULAR) EMPLOYEES _____ **TOTAL No. OF TRADE EMPLOYEES** _____

PART B: This section is applicable for a public contract you are currently working on in Gary or for your most recent public contract (since January 20, 1998) if you are not currently working on a public contract. Attach additional sheets of paper if necessary. Indicate T for trades or R for regular employee in the first box. Indicate in the last box whether employee is a union member, y for yes or n for no. The City of Gary District is requesting disclosure of the Social Security numbers in order to expedite verification. Disclosure is voluntary and you will not be penalized for failure to disclose them.

PART C: SUB-CONTRACTOR / SUPPLIER LIST: Complete this Section by listing all Sub-Contractors / Suppliers that you are intending to use in connection with this project. Indicate whether sub-contractor is a union shop or member by marking y for yes and n for no in the last box. Attach additional sheets of paper if necessary.

Are the above named sub-contractors / suppliers pre-approved by the City of Gary? _____ Yes _____ No

PART D: WORKER LIST: *Provide the following information for all persons that you are intending to work on this project. The City of Gary requesting disclosure of the Social Security numbers in order to expedite verification. Disclosure is voluntary and you will not be penalized for failure to disclose them. Attach additional sheets of paper if necessary*

WORKER NAME JOB CLASSIFICATION SOCIAL SECURITY No. CITY STATE MINORITY Y / N SEX M / F

NOTE: All pages of this document must be filled out in their entirety and submitted with bid or proposal documents. No proposal or bid package submission is complete without a properly filled out copy of this document.

I affirm under the penalties for perjury that the foregoing representations are true.

Prepared By: _____ Date: _____
(Signed)

_____ (Print)

Approved By: _____ Date: _____
(Signed)

_____ (Print)

The person preparing and/or approving this form must be an authorized representative of the firm, as identified in the proposal or Bid documents.

AN ORDINANCE TO ADD A NEW CHAPTER TO TITLE 7 OF
THE MUNICIPAL CODE, ESTABLISHING AND AFFIRMATIVE ACTION
PROGRAM FOR THE CITY OF GARY, INDIANA.

Be it Ordained by the Common Council of the City of Gary, Indiana, as follows:

Section 1. There is hereby added to Title 7 of the Municipal Code of the City of Gary, Indiana, a new chapter, number 29, and titled, "City of Gary Affirmative Action Program" which chapter is as follows:

Section 2. Title. This ordinance shall be known as and may be cited as the "City of Gary Affirmative Action Ordinance."

Section 3. PURPOSE. It is the public policy of the City of Gary to provide equal employment and business opportunity for all persons, partnerships, companies, and corporations and to prohibit discrimination in employment and business practices because of race, color, religion, sex, ancestry or national origin; and to promote the full realization of equal employment and business opportunity through a positive and continuing program within each department, division, agency or component of the City of Gary. This policy of equal employment and business opportunity shall apply to every contractor, subcontractor or bidder holding or seeking a public contract with the City of Gary, and is intended to provide minority businesses in the City of Gary maximum opportunity to participate in the bidding of City of Gary's nonbid purchase orders up to legal nonbid limit.

Section 4. Definitions.

1. **CITY OF GARY**-City of Gary, Municipal Corporation.
2. **DISCRIMINATION**- Distinguish, differentiate, segregate or segregate on the basis of race, color, religion, sex, ancestry, or national origin.
3. **CONTRACTOR**- Shall include any person, partnership, corporation, association or joint venture seeking to be awarded a City of Gary contract and includes every subcontractor under such contract.
4. **SUBCONTRACTOR**- Shall include any person, partnership, corporation, association or joint venture which supplies any of the work, labor, services, supplies, equipment, materials or any combination of the foregoing under a contract with the contractor.
5. **PUBLIC CONTRACT**-Any contract awarded by the City of Gary for work, labor, services, supplies equipment, materials, or any combination of the foregoing.
6. **BIDDER**-Any person, partnership, corporation, association or joint venture who has submitted prescribed bid documents to the Board of Public Works and Safety of the City of Gary seeking award of a public contract.
7. **CONSTRUCTION CONTRACT**-Any public contract for the construction, rehabilitation, alteration, conversion, extension, or repair of building, sidewalks, grounds, parking lots, or other improvements to real property.

8. **EMPLOYEE**- The term "employee" shall not include any individual employed by his parents, spouse, or child, or to the domestic service of any person.
9. **PERSON**- The term "person" includes one or more individuals, partnerships, associations, organizations, corporations, labor organizations, legal representatives and other organized groups of persons.
10. **COMPTROLLER**- A public officer of a state or municipal corporation charged with City duties in relation to the fiscal affairs of the same. His principle duties are to examine and audit collections of the public money, to complete records and report the financial situation from time to time.
11. **DEPARTMENT HEAD**- An individual who is the head of any department, division, agency or component of the City of Gary.
12. **NON-BID**- Any public contract let for construction or purchase of material without the taking of bids in accordance with law.

Section 5. COMPLIANCE OFFICE-There shall be and there is hereby established in the Office of the City Controller the Administrative position of Compliance Officer with all personnel deemed necessary to effectively implement the purpose of this ordinance. The Compliance Officer shall work under the direction of the Controller and the Mayor, and shall administer and enforce the City's Affirmative Action Ordinance established by Section 2 to 13 inclusive, establish procedures to effectuate such Sections; hold and conduct hearings relative to violations of the Ordinance; and make all determinations as to compliance with said Ordinance. He shall have at his disposal the resources of the City's several departments and other independent agencies who may be under contract with the City.

Section 6. EQUAL EMPLOYMENT OPPORTUNITY CLAUSE. All public contracts hereinafter entered into by the City of Gary shall incorporate an Equal Employment Opportunity Clause which shall read as follows: During the performance of this contract, the contractor agrees as follows:

1. The contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, ancestry, or national origin. The contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, ancestry or national origin. As used herein the word "treated" shall mean and include, without limitation, the following: recruited, whether advertising or other means; compensated, whether in the form of rates of pay, or other forms of compensations; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated. The contractor agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Compliance Officer setting forth the provisions of this nondiscrimination clause.

2. The contractor should in all classifications, including trainees, on any contracted project with the City of Gary, have a minority work force proportional to the total minority population of Gary which should in no instance be less than 50%. No contractor having minority employees in all classifications of his work force of less than 50% shall receive a contract from the City of Gary unless the proportion of minority employees to the total minority population of Gary shall be agreed to by the awarding authority after recommendation by the Contract Compliance Office.

This minimum minority work force in all classifications shall be equitably proportional to the ratio of minority population of Gary which minorities are designated as Black, Spanish surname, Oriental, and American Indian.

3. The contractor shall in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all applicants will receive consideration for employment without regard to race, color, religion, sex, ancestry or national origin.
4. The contractor shall send to each labor union or representative or workers with which he has collective bargaining agreement or other contract or understanding, a notice advising the labor union or worker's representative of the contractor's commitments under the Equal Employment Opportunity Clause of the City of Gary and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

5. It shall be no excuse that the action with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.
6. The contractor shall furnish all information and reports required by the Compliance Officer pursuant to paragraph 1 through 10 inclusive, and shall permit inspection of his books and records for purposes of investigation to ascertain compliance with the program.
7. The Contractor shall file and shall cause his subcontractors, if any, to file compliance reports with the City in the form and to the extent prescribed by the Contract Compliance Officer of the City of Gary. Compliance reports filed at such times as directed shall contain information as to the employment practices, policies, programs and statistics of the contractor and his subcontractors.
8. The contractor shall take such action with respect to any subcontractor as the City may direct as a means of enforcing the provisions of paragraphs 1 through 10 herein, including penalties and sanctions for non-compliance.
9. The contractor shall include the provisions of paragraph 1 through 10 of this Equal Employment Opportunity Clause in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor.
10. During hearing procedures all contract payments shall be withheld and if it is determined after opportunity for hearing on the record that the contractor or subcontractor has failed to comply with any portion of the program as herein stated and described that finding will subject the offending party to any or all of the following penalties.
 - a. Continued withholding of all future payments under the public contract to the contractor in violation until it is determined that the contractor or subcontractor is in compliance with the provisions of the contract.
 - b. Refusal of all future bids for any public contract with the City of Gary or any of its departments or divisions until such time as the contractor or subcontractor demonstrates that he has established and shall carry out the policies of the program as herein outlined.
 - c. Cancellation of the public contract and declination of forfeiture of the performance bond.
 - d. In cases in which there is substantial or material violation or the threat of substantial or material violation of the compliance procedure or as may be provided for by the contract, appropriate proceedings may be brought to enforce these provisions, including the enjoining, within applicable law, of contractors, subcontractors, or other organizations, individuals, or groups who prevent directly, indirectly, or seek to prevent directly or indirectly, compliance with this ordinance.

Section 7. CONTRACT COMPLIANCE REQUIREMENTS. Office of Contract Compliance shall establish any and all necessary supplemental documents that will be required to effectively implement City of Gary Affirmative Action Ordinance. All notices to prospective bidders published on behalf of the City of Gary shall include as part of the contract specifications the condition that all bidders will be required to submit an affirmative action plan and to comply with the Equal Employment Opportunity Clause regarding equal employment opportunity.

All reports required herein shall be submitted in duplicate to the Compliance Officer.

Each bidder shall file as part of bid documents and Affirmative Action Plan for implementing the policy of this ordinance, employment information reports, contract reports with city contracting agency, the Board of Public Works and Safety, or as may be directed by the Compliance Officer. Such information shall include information as to the employment practices, policies, programs, and statistics of the contractor, and shall be in such form as the Compliance Officer may prescribe. Submit such information to the Board of Public Works and Safety. Contractor must identify all of his subcontractors and must disclose where he is buying all of his supplies before approval of the subcontractors.

Section 8. PRE-CONTRACT AWARD CONFERENCE. Following receipt and review of the Affirmative Action Plan and the employment information submitted by the bidders, and prior to award of a contract, the apparent low bidder and his subcontractors shall be required to attend a pre-award conference called by the Compliance Officer.

At the conference the Compliance Officer shall determine whether or not the apparent successful bidder has complied with the policy of the ordinance set out in the various sections, and shall submit his findings and recommendations thereon to the Mayor and Board of Public Works and Safety, the agency taking bids, or other agencies he may deem appropriate.

Section 9. PROJECT SITE REPORTS. Where a construction contract exists a project site report shall be completed and submitted by the contractor and any subcontractor not more than 30 days from the beginning of work on the site, and the Compliance Officer shall conduct such periodic on site reviews as are deemed necessary. Such project site reports shall include such information as to the employment practices and statistics of the contractor and each subcontractor, and shall be in such form as the Compliance Officer may prescribe. Where the term and statistics of the contractor and each subcontractor, and shall be in such form as the Compliance Officer may prescribe. Where the term of the contract exceeds 30 days, such project site reports shall be submitted once each 30 days, or more frequently if the Compliance Officer determines that such submittal is deemed necessary for a continuing evaluation of the work force composition. Subcontractors shall complete and submit such project site reports to the contractor for transmittal to the Compliance Officer.

Section 10. INTERGOVERNMENTAL COOPERATION. In the event specific discriminatory practices are found to exist in the administration and enforcement of this ordinance in addition to the sanctions that may be imposed as provided by the terms of the contract, the Compliance Officer shall forward all pertinent information to appropriate Federal, State, and local agencies.

Section 11. CONTRACT DISPOSITION.

1. In the event a contractor fails to cooperate in reaching mutually satisfactory solutions or to implement contract compliance agreements previously made, the Compliance Officer shall review such cases to determine:
 - a. Whether further efforts or alternative approaches are desirable, depending upon the nature of the problem.
 - b. Whether any of the penalties set forth in paragraph 10 of Section 6 is appropriate to the case.
2. In the event the Compliance Officer determines that the contractor has violated or has failed to comply with the equal employment and business opportunity requirements of the contract after affording such contractor a reasonable time to correct his situation and where negotiations have been of no avail, he shall make a finding under paragraphs (1) (a) or (1) (b) of this Section, and shall transmit said findings and recommendations thereon to the Mayor and the Controller and the Board of Public Works and Safety and other agencies he may deem appropriate.

Section 12. SEVERABILITY CLAUSE. Severability- Each section and each provision or requirement of any Section of the Ordinance shall be considered separable, and the invalidity of any portion of this Ordinance shall not affect the validity or enforceability of any other portion.

Section 13. This ordinance shall be in full force and effect from and after the date of its passage and publication with accordance to law.

Adopted by the Common Council of the City of Gary, Indiana, this 24th day of October, 1972.

/S/ CLEO WESSON
PRESIDING OFFICER

ATTEST:
BETTY HALINKA
CITY CLERK

Presented by me to the Mayor for his approval and signature this 8th day of November, 1972.

/S/ BETTY HALINKA
CITY CLERK

APPROVED AND SIGNED by me this 17th day of November, 1972.

/S/ RICHARD GORDON HATCHER
MAYOR, CITY OF GARY, INDIANA

Sponsored by:
Mayor Richard Gordon Hatcher
Prepared by:
Law Department (JAH:ggd/vh)

ARTICLE 1. GARY CIVIL RIGHTS ORDINANCE

This Ordinance shall be known and may be cited and referred to as the "Gary Civil Rights Ordinance."

ARTICLE 2. PURPOSES

It is the public policy of the City of Gary, Indiana to provide all of its citizens equal opportunity for education, employment, and access to public conveniences and accommodations and acquisition through purchase or rental of real property including, but not limited to housing and to eliminate segregation or separation based solely on race, color, creed, religion, sex, ancestry, familial status, national origin, or handicap, is the purpose of this act. It is also the public policy of this city to protect employers, labor organizations, employment agencies, property owners, real estate brokers, builders and lending institutions from unfounded charges of discrimination.

Equal educational and employment opportunities and equal access to and use of public accommodations and equal opportunity for acquisition of real property, to the extent that remedies for the prevention of their denial are herein provided, are hereby declared to be civil rights. The practice of denying these rights to properly qualified persons by reason of the race, color, creed, religion, sex, familial status, national origin, ancestry, or handicap of such person is contrary to the principles of freedom and equality of opportunity, and is a burden to the objectives of the public policy of this city and are hereby declared to be unlawful discriminatory practices.

It is hereby declared to be contrary to the public policy of the City of Gary and an unlawful practice for any person for profit, to induce or attempt to induce any person to sell or rent any dwelling by representations regarding the entry or prospective entry into the neighborhood of a person or persons of a particular race, religion, color, sex, familial status, handicap, national origin, or ancestry.

ARTICLE 3. DEFINITIONS

For the purpose of this Ordinance, the phrases, words and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future; words used in the plural number include the plural number. The word "shall" is always mandatory and not merely directory.

(A) The term "Person" means one (1) or more individuals, corporations, partnerships, associations, labor organizations, legal representatives, mutual companies, joint-stock companies, trusts, unincorporated organizations, trustees, trustees in cases under Title II, receivers and fiduciaries. Aggrieved person includes any person who:

Claims to have been injured by a discriminatory act or practice; or believes that said person will be injured by discriminatory housing practice that is about to occur.

(B) The term "Commission" means the Human Relations Commission of the City of Gary, Indiana, hereinafter created.

(C) The term "Conciliation" means the attempted resolution of issues raised by a complaint or by the investigation of a complaint, through informal negotiations involving the aggrieved person, the respondent, and the commission.

(D) The term "Conciliation Agreement" means a written agreement setting forth the resolution of the issues in conciliation.

(E) The term "Commissioners" means any duly appointed member of the Human Relations Commission.

(F) The term "Director" means the Director of the Human Relations Commission.

(G) The term "Deputy Director" means a Deputy Director of the Human Relations Commission.

(H) The term "Dwelling" means:

- (1) any building, structure, or part of a building or structure that is occupied as or designed or intended for occupancy as, a residency by one (1) or more families; or
- (2) any vacant land that is offered for sale or lease for the construction or location of a building, structure, or part of a building or structure described by subdivision (1).

(I) The term "Employer" includes the City of Gary and all governmental entities situated therein and any person employing six (6) or more persons within the city.

(J) The term "Employee" means any person employed by another for wages or salary; however, it does not include one employed by his parents, spouse, or child, or in the domestic service of any person.

(K) The term "Family" includes a single individual. Under this ordinance, a discriminatory act is committed because of familial status if the act is committed because the person who is the subject of discrimination is:

- (1) pregnant;
- (2) domiciled with an individual younger than eighteen (18) years of age in regard to whom the person:
 - (A) is the parent or legal custodian; or
 - (B) has the written permission of the parent or legal custodian for domicile with that person ; or
- (3) in the process of obtaining legal custody of an individual younger than 18 years of age.

(L) The term "Labor Organization" includes any organization which exists for the purpose, in whole or in part, for collective bargaining or for dealing with employers concerning grievances, terms or conditions of employment, or for other mutual aid or protection in relation to employment.

(M) The term "Employment Agency" includes any person undertaking with or without compensation to procure, recruit, refer or place employees.

(N) The term "Public Accommodation" means any establishment which caters or offers its services or facilities or goods to the general public.

(O) The term "Educational Institution" means any public or private school or training center except those affiliated with religious institutions, which may give preference to members of their religious group in selecting its students.

(P) The term "Owner" means any person having the right of ownership or possession or the right to sell, rent or lease any housing unit, including but not limited to a lessee, sub-lessee, assignee or managing agent.

(Q) The term "Real Estate Operator" means any individual or combination of individuals, labor unions joint apprenticeship committee, partnerships, associations, corporations, legal representatives, mutual companies, trusts, unincorporated organizations, trustees in bankruptcy, receivers, or other legal or commercial entity, or any governmental agency, branch or sub-division thereof, that is engaged in the business of selling, purchasing, exchanging, renting, or leasing real estate, or the improvements thereon, including options or that derives incomes, in whole or in part, from the sale, purchase, exchange, rental or lease of real estate; or an individual employed by or acting on behalf of any of these.

(R) The term "Financial Institution" means banks, banking organizations, mortgage company, insurance company, or other lender to whom application is made for financial assistance for the purchase, lease acquisition, construction, rehabilitation, repair, maintenance, or improvement of real property, or an individual employed by or acting on behalf of any of these.

(S) The term "Complainant" means any individual charging on his own behalf to have been personally aggrieved by an unlawful discriminatory practice, or the director, deputy director, charging that an unlawful discriminatory practice was committed against a person or class of persons other than himself, or a class of people, in order to vindicate the public policy of the City of Gary, Indiana as referred to in Article II of this Ordinance.

(T) The term "Respondent" means:

- (1) the person accused of a violation of this article in a complaint of discrimination or
- (2) any person identified as an additional or a substitute respondent under IC22-9.5-6-4 or an agent of an additional or a substitute respondent.

(U) The term "Sex" as it applies to segregation or separation in this chapter shall apply to all types of employment, education, public accommodations and housing: Provided, however, that (1) it shall not be a discriminatory practice to maintain separate rest rooms or dressing rooms, and that (2) it shall not be a discriminatory practice for an employer to hire and employ employees, or for an employment agency to classify or refer for employment any individual, for a labor organization to classify its membership or to classify or refer to employment any individual, or for an employer, labor organization, or joint labor management committee controlling apprenticeship or employ any individual in any such program on the basis of sex in those certain instances where sex is a bona fide occupational qualification reasonably necessary to the normal operation of that particular business or enterprise; and that (3) it shall not be a discriminatory practice for a private or religious educational institution to continue to maintain and enforce a policy of admitting students of one sex only.

(V) The term "handicap" means with respect to a person:

- (1) a physical or mental impairment that substantially limits one (1) or more person's major life activities;
- (2) a record of having an impairment described above in subdivision (1); or
- (3) being regarded as having an impairment described above in subdivision (1)

- (4) the term does not include current illegal use of or addiction to a controlled substance (as defined in Section 102 of the Controlled Substances Act (21 U.S.C. 802))
- (5) the term does not include an individual solely because that individual is a transvestite.

(W) "Discriminatory Housing Practice" means an act prohibited by this Ordinance.

(X) A reasonable accommodation is any change or adjustment to a job or work environment that permits a qualified applicant or employee with a disability to participate in the job application process, to perform the essential functions of a job, or to enjoy benefits and privileges of employment equal to those enjoyed by employees without disabilities.

(Y) "AGGRIEVED PERSON" INCLUDES ANY PERSON WHO CLAIMS TO HAVE BEEN INJURED BY A DISCRIMINATORY HOUSING PRACTICE OR BELIEVES THAT SUCH PERSON WILL BE INJURED BY A DISCRIMINATORY HOUSING PRACTICE THAT IS ABOUT TO OCCUR.

ARTICLE 4. EXEMPTIONS

(a) This article does not prohibit a religious organization, an association, or a society or a nonprofit institution or an organization operated, supervised, or controlled by or in conjunction with a religious organization, an association, or a society from:

- (1) limiting the sale, rental, or occupancy of dwellings that it owns or operates for other than a commercial purpose to persons of the same religion; or
- (2) giving preference to persons of the same religion, unless membership in the religion is restricted because of race, color, or national origin.

(b) This article does not prohibit a private club not open to the public that, as an incident to the club's primary purpose, provides lodging that the club owns or operates for other than a commercial purpose from limiting the rental or occupancy of that lodging to the members or from giving preference to the members, unless membership in the club is restricted because of race, color or national origin.

(c) As used in this section, "housing for older persons" means housing:

- (1) provided under any State or Federal program that HUD's Secretary determines is specifically designed and operated to assist elderly persons (as defined in the State or Federal program); or
- (2) intended for, and solely occupied by, persons 62 years of age or older; or
- (3) intended and operated for occupancy by at least one person 55 years of age or older per unit. In determining whether housing qualifies as housing for older persons under this subsection, the Secretary of the Department of Housing & Urban Development shall develop regulations, which require at least the following factors.
 - (i) the existence of significant facilities and services specifically designed to meet the physical or social needs of older persons; or if the provision of such facilities and services is not practicable, that such housing is necessary to provide important housing opportunities for older persons; and
 - (ii) that at least 80 percent of the units are occupied by at least one person 55 years of age or older per unit; and
 - (iii) the publication of, and adherence to, policies and procedures, which demonstrate an intent by the owner or manager to provide housing for persons 55 years of age or older.

The provisions of this Ordinance relating to familial status do not apply to housing for older persons.

- (d) This section does not prohibit a person engaged in the business of furnishing appraisals of real property from taking into consideration factors other than race, color, religion, sex, handicap, familial status, or national origin.
- (e) NOTHING IN THIS SUBSECTION LIMITS THE APPLICABILITY OF ANY REASONABLE LOCAL OR STATE RESTRICTIONS REGARDING THE MAXIMUM NUMBER OF OCCUPANTS PERMITTED TO OCCUPY A DWELLING.

(f) This section does not affect a requirement of non-discrimination in any other state or federal law.

ARTICLE 5. COMMISSION---CREATION---MEMBERSHIP

(A) There is hereby established in the City of Gary a Commission on Human Relations to carry out the provisions of this Ordinance. The Commission shall consist of Eleven (11) members. All members of the Human Relations Commission shall be appointed by the Mayor, subject to the advice and consent of the Common Council.

(B) All Commissioners appointed under the authority of Ordinance 4050 and whose terms have not expired by the effective date of this Ordinance, shall continue to serve for the terms of their appointment. Thereafter, the terms of service shall be four (4) years. Each member of the Commission shall continue to serve after his term until his successor is appointed.

(C) Upon the death or resignation of any member, a successor shall be appointed by the Mayor, subject to the advice and consent of the Common Council, to serve for the unexpired term of the member.

(D) The members of the Commission shall serve without compensation, but they may be reimbursed for all expenses necessarily incurred in the performance of their duties in accordance with appropriations made by the Common Council.

(E) Any member who is absent four (4) unexcused absences out of any eight (8) successive regular meetings may be removed from the Commission by a majority vote of the entire Commission.

ARTICLE 6. COMMISSION -----POWERS AND DUTIES

(A) The Commission shall elect one of its members as Chairman and may elect such other officers, as it may deem necessary. The Commission shall meet at least once each month and may hold special meetings as the Chairman deems necessary. Six (6) members of the Commission shall constitute a quorum for the transaction of business. No official action shall be taken by the Commission except by an affirmative vote of an absolute majority of a quorum of members of said Commission; provided that a majority of the entire Commission shall be required for a finding of violation of this Ordinance.

(B) The Commission shall appoint a Director, Deputy Director and such other personnel as may be authorized by the Mayor and subject to the advise and consent of the Common Council to assist the Commission in carrying out provisions of this Ordinance.

(C) To create subcommittees and advisory committees as in its judgment will aid in effectuating the purpose of this Ordinance.

(D) To gather and distribute information intended to improve human relations and achieve equal opportunity.

(E) To reduce tensions and prevent violence caused by breakdowns in relations between persons of various racial, ethnic and religious groups.

(F) To make studies appropriate to effectuate the purposes and policies of this chapter and to make the results thereof available to the public.

(G) To discourage any person from engaging in discriminatory practices by informal methods of persuasion and conciliation, to induce compliance with this act.

(H) To prevent any person from discharging, expelling or otherwise discriminating against any person because he filed a complaint or testified in any hearing before this Commission, or in any way assisted the Commission in any matter under its investigation.

(I) To investigate, conciliate and hear complaints, subpoena and compel the attendance of witnesses or production of pertinent documents and records, examine witnesses under oath or affirmation in findings and recommendations and issue cease and desist orders requiring remedial action.

The Commission shall have the power to institute actions for appropriate legal or equitable relief in a Circuit or Superior Court to obtain enforcement of any Commission order or subpoena. All subpoenas and orders emanating from the Commission, shall be served pursuant to the Indiana Rules of Civil Procedure applicable to service in civil actions, provided that no Commissioner shall take part in a hearing on a complaint in which said Commission is the complainant.

(J) To state its findings of fact after a hearing and, if the Commission finds a person has engaged in an unlawful discriminatory practice, it may cause to be served on such person an order requiring such person to cease and desist from the unlawful discriminatory practice and requiring such person to take further affirmative action as will effectuate the purpose of this act.

(K) If upon all the evidence the Commission shall find that a person has not engaged in any such unlawful practice or violation of this act, the Commission shall state its findings of facts and shall issue and cause to be served on the complainant an order dismissing the said complaint to such person.

(L) To reduce the terms of conciliation agreed to by the parties to a writing to be called a Consent Agreement, which the parties and a majority of the Commissioners shall sign. When so signed, the Consent Agreement shall have the same effect as a Cease and Desist order. If the Commission determines that a party to a Consent Agreement is not complying with it, the Commission may obtain enforcement of the Consent Agreement in a Circuit or Superior Court upon showing that the Party is not complying with the Consent Agreement and that the Party is subject to the Commissioner's jurisdiction and resides or transacts business with the City of Gary. CONCILIATION IN HOUSING CASES SHALL BE GOVERNED BY THE SPECIAL PROVISIONS OUTLINED IN ARTICLE 9, SECTION 5.

(M) To render from time to time, but not less than once a year, a written report of its activities and recommendations with respect to discriminatory practices to the Mayor and the Common Council.

(N) To solicit and receive donations, grants and collect fines and penalties to be used for the purpose of furthering the public policies stated in Article 2 of this Ordinance.

ARTICLE 7. UNLAWFUL DISCRIMINATORY PRACTICES

The exclusion of a person from failure or refusal to extend to a person equal opportunities because of race, color, creed, religion, sex, familial status, national origin, ancestry or handicap, or promotion of racial segregation in any manner, are hereby declared to be illegal. Unlawful discriminatory practices shall include, but not be limited to the following:

(A) Unlawful Housing Practices. It is an unlawful discriminatory practice for an individual, a real estate operator or an individual employed by or acting on behalf of any real estate operator:

- (1) TO REFUSE TO SELL, EXCHANGE, RENDER OR LEASE OR OTHERWISE MAKE UNAVAILABLE OR DENY AN INDIVIDUAL ANY DWELLING BECAUSE OF HIS RACE, COLOR, CREED, RELIGION, SEX, FAMILIAL STATUS, NATIONAL ORIGIN, ANCESTRY OR HANDICAP;
- (2) to discriminate against an individual because of his race, color, creed, religion, sex, familial status, national origin, ancestry, or handicap in the terms, conditions, or privileges and the sale, exchange, rental, or lease of a dwelling or in the furnishing of facilities or services in connection therewith;

- (3) to refuse to receive or transmit a bona fide offer to purchase, rent, or lease any dwelling from an individual because of race, color, religion, familial status, sex, national origin, creed, ancestry or handicap;
- (4) to refuse to negotiate for the sale, rental or lease of any dwelling to an individual because of his race, color, religion, sex, familial status, national origin, creed, ancestry or handicap;
- (5) to represent to an individual that a dwelling is not available for inspection, sale, rental, or lease, when in fact it is so available, or to refuse to permit an individual to inspect a dwelling because of his race, color, religion, sex, familial status, national origin, creed, ancestry or handicap;
- (6) to print, circulate, post or mail or cause to be printed, circulated, posted or mailed an advertisement or sign or to use a form of application for the purchase, rental or lease of a dwelling, or to make a record of inquiry in connection with the prospective purchase, rental or lease of a dwelling, which indicates directly or indirectly a limitation, preference, specification, or discrimination as to race, sex, color, religion, national origin, familial status, creed, ancestry or handicap, or an intent to make such a limitation, specification or discrimination;
- (7) to offer, solicit, accept, use or retain a listing of a dwelling for sale, rental or lease with the understanding that an individual may be discriminated against in the sale, rental, or lease of the dwelling or in the furnishing of facilities or services in connection therewith because of his race, sex, color, religion, national origin, familial status, creed, ancestry or handicap, or
- (8) to otherwise deny or to withhold a dwelling from an individual because of his race, sex, color, religion, national origin, familial status, creed, ancestry, or handicap,

(9) the promotion of discriminatory segregation or separation in any manner, including but not limited to the inducing of, or the attempting to induce for profit, any person to sell or rent any dwelling by representations regarding the entry or prospective entry in the neighborhood of a person or persons of a particular race, religion, familial status, color, sex, handicap, national origin or ancestry. Every discriminatory practice relating to the acquisition or sale of real estate, education, public accommodations, employment or the extending of credit as "credit" is defined in IC 24-4.5-301, shall be considered unlawful unless it is specifically exempted by this Ordinance.

(10) Refusing to provide municipal services or property, or hazard insurance for dwellings or providing such services or insurance differently because of race, color, religion, sex, handicap, familial status, or national origin.

(11) This section does not prohibit discrimination against a person because the person has been convicted under federal law or the law of any state of the illegal manufacture or distribution of a controlled substance.

(12)(a) A person may not discriminate in the sale or rental or otherwise make unavailable or deny a dwelling to any buyer or renter because of a handicap of:

- (1) the buyer or renter;
- (2) a person residing in or intending to reside in the dwelling after the dwelling is sold, rented, or made available; or
- (3) any person associated with the buyer or renter.

(b) A person may not discriminate against any person in the terms, conditions, or privileges of sale or rental of a dwelling or in the provision of services or facilities in connection with the dwelling because of a handicap of:

- (1) the person;

(2) a person residing in or intending to reside in the dwelling after the dwelling is sold, rented or made available; or

(3) any person associated with the person.

(c) For purposes of this section only, discrimination includes the following:

(1) A refusal to permit, at the expense of the handicapped person, reasonable modifications of existing premises occupied or to be occupied by the person if the modifications may be necessary to afford the person full enjoyment of the premises.

(2) A refusal to make reasonable accommodations in rules, policies, practices, or services, when the accommodations may be necessary to afford the person equal opportunity to use and enjoy a dwelling.

(3) In connection with the design and a construction of covered multifamily dwellings for first occupancy after March 13, 1991, a failure to design and construct those dwellings in a manner that:

(A) the public use and common use parts of the dwellings are readily accessible to and usable to handicapped persons;

(B) all the doors are designed to allow passage into and within all premises within the dwellings and are sufficiently wide to allow passage by handicapped persons in wheelchairs; and

(C) all premises within the dwellings contain the following features of adaptive design:

(i) an accessible route into and through the dwelling;

(ii) light switches, electrical outlets, thermostats and other environmental controls in accessible locations;

(iii) reinforcements in bathroom walls to allow later installation of grab bars; and

(iv) usable kitchens and bathrooms so that an individual in a wheelchair can maneuver about the space.

(D) As used in subsection (c), "covered multifamily dwellings" means:

(1) buildings consisting of four (4) or more units if the buildings have one (1) or more

elevators; and

(2) ground floor units in other buildings consisting of four (4) or more units.

(3) compliance with the rules of the fire prevention and building safety commission that incorporates by reference the appropriate requirements of the American National Standard for buildings and facilities providing accessibility and usability for physically handicapped people 675 I.A.C. 13-14 (ANSI A117.1) satisfy the requirements of subsection (c) (3) (C).

(4) this section does not require that a dwelling be made available to an individual whose tenancy would constitute a direct threat to the health or safety of other individuals or whose tenancy would result in substantial physical damage to the property of others.

(13) (a) As used in this section, "residential real estate related transaction" means the following:

(1) Making or purchasing loans or providing other financial assistance:

(A) to purchase, construct, improve, repair, or maintain a dwelling; or

(B) to secure and SECURED BY residential real estate.

(2) Selling, brokering, or appraising dwellings.

(b) A person whose business includes engaging in residential real estate related transactions may not discriminate against a person in making a real estate related transaction available or in the terms or conditions of a real estate related transaction because of race, color, religion, sex, handicap, familial status, or national origin.

(14) A person may not deny any person access to, or membership or participation in, a multiple-listing service, real estate brokers' organization or other service, organization, or facility relating to the business of selling or renting dwellings, or discriminate against a person in the terms or conditions of access, membership or participation in such an organization, service, or facility because of race, color, religion, sex, handicap, familial status, or national origin.

(15) A person may not coerce, intimidate, threaten, or interfere with any other person:

- (1) in the exercise or enjoyment of any right granted or protected by this chapter; or
- (2) because the person has exercised or enjoyed, or has encouraged another person in the exercise or enjoyment of, any right granted or protected by this chapter.

(B) Unlawful Financial Practices. It is an unlawful discriminatory practice for a financial institution or an individual employed by or acting on behalf of a financial institution:

(1) to discriminate against an individual because of the race, color, creed, religion, sex, national origin, familial status, ancestry, or handicap of the individual or the prospective owner, tenant or occupant of the real property or a member, stockholder, director, officer, employee, or representative of any of these, in the granting, withholding, extending, modifying or renewing, the rates, terms, conditions, privileges, or other provisions of financial assistance or in the extension of services in connection therewith; or

- (1) to use a form of application for financial assistance which indicates directly or indirectly, a limitation, specification, or discrimination as to race, color, creed, familial status, religion, sex, national origin, ancestry, or handicap or an intent to make such a limitation, specification, or discrimination.

(C) Block Busting. It is an unlawful discriminatory practice for a real estate operator, a real estate broker, a real estate salesman, a financial institution, an employee of any of these, or any other person, for the purpose of inducing a real estate transaction from which he may benefit financially:

- (1) to represent that a change has occurred or will occur in the composition with respect to race, color, creed, religion, familial status, sex, national origin, ancestry or handicap of the owners or occupants in the block, neighborhood, or area in which the real property is located; or

(2) to represent that this change will or may result in the lowering of property values, or a decline in the quality of schools in the block, neighborhood, or areas in which the real property is located.

(D) Employers Discrimination. It is an unlawful discriminatory practice for an employer:

(1) to fail or refuse to hire, or to discharge an individual, or otherwise to discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, creed, or ancestry.

(2) to limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, creed or ancestry.

(3) to refuse to hire or otherwise discriminate with respect to hire, tenure, terms, conditions or privileges of employment because of the sex of an individual or the handicap of any individual.

(4) it shall be unlawful for an employer to discriminate against an individual with a disability who can perform the essential functions of a job with reasonable accommodations.

(5) employers shall not be required to make reasonable accommodations if said accommodation creates an undue hardship.

(6) the enforcement of the provisions regarding discrimination on the basis of handicap in employment shall be governed by Equal Employment Opportunity for Individuals with Disabilities, 29 CFR Part 1630.

(E) Labor Organization, Discrimination. It is an unlawful discriminatory practice for a labor organization:

- (1) to exclude or to expel from its membership, or otherwise to discriminate against, a member or applicant for membership because of his race, color, religion, national origin, creed, ancestry;
- (2) to limit segregate, or classify its membership, or to classify or fail or refuse to refer for employment an individual, in any way which would deprive or tend to deprive an individual of employment opportunities, or would limit such employment opportunities or otherwise adversely affect his status as an employee or as an applicant for employment, because of such individual's race, color, religion, national origin, creed, or ancestry.
- (3) to cause or to attempt to cause an employer to discriminate against an individual in violation of this section.
- (4) to discriminate against any individual or to limit, segregate or qualify its membership in any way which would tend to deprive such individual of employment opportunities, or would limit his employment opportunities or otherwise adversely affect his status as an employee or as an applicant for employment or would affect adversely his wages, hours or employment conditions because of such individual's sex or handicap.

(F) Apprenticeship or Training, Discrimination. It is an unlawful discriminatory practice for an employer, labor organization or joint labor management committee controlling apprenticeship or other training or retraining, including on-the-job training programs to discriminate against an individual because of his race, color, religion, national origin, creed, ancestry or sex in admission to or employment in any program established to provide apprenticeship or other training.

(G) Employment Agencies, Discrimination. It is an unlawful discriminatory practice for an employment agency:

- (1) to fail or refuse to refer for employment, or otherwise to discriminate against an individual because of his race, color, religion, national origin, creed or ancestry.

(2) to fail or refuse to classify properly, refer for employment or otherwise to discriminate against any individual because of his handicap or sex, except that any presently operating agency bearing a name, which directly or indirectly expresses or connotes any such limitation, specification or discrimination as to handicap, or sex, is excluded from this section.

(H) Unlawful Recruiting, Advertising and Hiring Practices. Except as permitted by paragraph G (2) of this section, it shall be unlawful for any employer, employment agency or labor organization prior to employment or admission to membership to:

(1) print or publish or cause to be printed or published any notice or advertisement relating to employment or membership indicating any preference, limitation, specification or discrimination based upon handicap or sex;

(2) establish, announce or follow a policy of denying or limiting through a quota system or otherwise, employment or membership opportunities of any group because of the handicap or sex of a member of such group; and

(3) utilize in the recruitment or hiring of individuals any employment agency, placement service, training school or center, labor organization or any other employee referring source known by such person to discriminate against individuals because of their handicap or sex.

(I) Public Accommodations. It is an unlawful discriminatory practice for a person to deny an individual the full and equal enjoyment of the goods, services, facilities, privileges, advantages and accommodations of a place of public accommodation, resort or amusement, on the grounds of race, color, religion, sex, national origin, creed, ancestry or handicap.

(J) Educational Institutions. It is an unlawful discriminatory practice for any educational institution to deny admittance to any prospective student or enrollee, or to deny any service offered by such institution to any person, otherwise qualified for such service, on the ground of race, color, religion, sex, national origin, creed, ancestry or handicap.

(K) It is an unlawful practice for any person, including but not limited to any employer, employment agency, labor organization, educational institution, financial institution, or real estate operator to discharge, expel or penalize any individual in any manner in an investigation, proceeding or hearing under this Ordinance.

ARTICLE 8. PROCEDURE-ENFORCEMENT

(A) Except for a complaint concerning Housing discrimination, no complaint may be accepted by the Commission unless it substantially complies with the following requirements:

- (1) the complaint must sufficiently show the full name and address of the complainant or the aggrieved person; the full name and the address of the person, employer, employment agency, labor organization, real estate operator, financial institution or education institution against whom the complaint is made; the alleged discriminatory practice and a statement of particulars thereof; the date or dates of the alleged discriminatory practice and if the alleged discriminatory practice is of a continuing nature, the dates between which said continuing acts of discrimination are alleged to have occurred; and a statement as to any other action, civil or criminal, instituted in any other form based upon the same grievance as is alleged in the complaint, together with a statement as to the status or disposition of such other action.
- (2) the original complaint must be signed and verified before a notary public or any other person duly authorized by law to administer oaths and take acknowledgements.
- (3) no complaint shall be valid unless filed within ninety (90) days from the day of the occurrence of the alleged discriminatory practice.

(B) The Commission shall make a prompt and full investigation of each complaint that is properly filed. The Commission may, by its Rules and Regulations, authorize such an investigation by an individual Commissioner, by any such staff members of the Commission as may be designated.

(C) If the Commission determines after investigation that probable cause exists for the allegations made in the complaint, it shall first attempt to eliminate the discriminatory practice by means of conciliation. The Commission shall not make

public the details of any conciliation and/ or consent agreement except when so authorized by the person against whom the complaint was made or when a party to the conciliation and/or consent agreement has not complied with the agreement.

(D) In any case of failure to eliminate the discriminatory practice charged in the complaint by means of conciliation or persuasion, the Commission shall hold a public hearing to determine whether or not an unlawful discriminatory practice has been committed. The Commission shall serve upon the person charged with having been engaged in or engaging in the unlawful discriminatory practice, hereinafter referred to as the Respondent, a statement of the charges made in the complaint and a notice of the time and place of the hearing. The hearing shall be held not less than fifteen (15) days after the service of the statement of charges. The Respondent shall have the right to file an answer to the statement of charges, to appear at the hearing in person or to be represented by an attorney or any other person, and to examine and cross-examine witnesses.

(E) If upon all the evidence presented, the Commission finds that the Respondent has not engaged in any unlawful discriminatory practice, it shall state its findings of fact and dismiss the complaint.

(F) If upon all the evidence presented, the Commission finds that the Respondent has engaged in unlawful discriminatory practices, it may cause to be served on such person an order requiring such person to take such further affirmative action as will effectuate the purpose of this Ordinance and may order the payment of actual damages. The damages that are found to be the result of discriminatory practices relating to employment shall be limited to lost wages, salaries, commissions or fringe benefits. If the Commission subsequently determines that the person upon whom the cease and desist order has been served is not complying with such order or is making no effort to comply with such order, the Commission may seek and obtain a decree of court for the enforcement of its order in the Circuit or Superior Court. Failure to comply with a Consent Agreement shall be considered as failing to comply with a cease and desist order.

(G) If it appears from the facts alleged in a properly filed complaint that there is a great probability of immediate and irreparable damage to the complainant as a result of the alleged discriminatory act, the Director or Deputy Director may immediately investigate such complaint and if upon the completion of such investigation, it appears that:

(1) the facts allege a discriminatory practice that is the proper subject of a hearing by the Commission, and;

(2) the facts as alleged in the complaint are true, and;

(3) there is a great probability of immediate and irreparable harm to the complainant or aggrieved person, the Commission Chairman may authorize the institution of appropriate legal or equitable proceedings, an order to obtain immediate injunctive relief to protect and preserve the rights of the complainant or aggrieved person, pending a final hearing before the Commission to hear the complaint. All notice requirements heretofore prescribed shall also apply to any hearings held pursuant to this section.

(H) Complaints may be amended at any time prior to hearing, provided that no hearing may be held on an amended complaint within fifteen (15) days after the filing of such amended complaint and notice to the adverse party thereto.

(I) Any evidence may be introduced at any hearing on a complaint, provided that such evidence is relevant and material to the subject matter of said complaint. The Commission shall rule on all objections to the introduction of any evidence, provided that the Commission make a motion or rule, designate a member or members to so rule prior to the commencement of any hearing.

ARTICLE 9. HOUSING DISCRIMINATION COMPLAINTS

Sec. 1. (a) The Commission shall investigate alleged discriminatory Housing practices.

(b) A complaint concerning an alleged discriminatory housing practice must be

- (1) in writing;
- (2) under oath; and
- (3) in the form prescribed by the Commission

(c) An aggrieved person may, not later than one (1) year after an alleged discriminatory housing practice has occurred or terminated whichever is later, file a complaint with the Commission alleging the discriminatory housing practice.

(d) Not later than one (1) year after an alleged discriminatory housing practice has occurred or terminated, or whichever is later, the Commission may file the Commission's own complaint.

(e) A complaint under this section may be amended at any time.

(f) When a complaint is filed under this section, the Commission shall do the following:

- (1) Give the aggrieved person notice that the complaint has been received.
- (2) Advise the aggrieved person of the time limits and choice of forums under this article
- (3) Not later than twenty (20) days after the filing of the complaint or the identification of an additional respondent under Section 4 of this chapter, serve on each respondent:
 - (A) a notice identifying the alleged discriminatory housing practice and advising the respondent of the procedural rights and obligations of a respondent under this article; and
 - (B) a copy of the original complaint.

Sec. 2. (a) Not later than ten (10) days after receipt of the notice and copy under Section 1 (f) (3) of this chapter, a respondent may file an answer to the complaint.

(b) An answer must be:

- (1) in writing;
- (2) under oath; and
- (3) in the form prescribed by the Commission

(c) An answer may be amended at any time.

(d) An answer does not inhibit the investigation of a complaint.

Sec. 3. (a) If the federal government has referred a complaint to the Commission or has deferred jurisdiction over the subject matter of the complaint to the Commission, the Commission shall promptly investigate the allegations set forth in the complaint.

(b) The Commission shall COMMENCE THE INVESTIGATION of all complaints WITHIN THIRTY DAYS OF THE REFERRAL FROM THE FEDERAL GOVERNMENT AND, EXCEPT AS PROVIDED BY SUBSECTION (c), shall complete an investigation not later than one hundred (100) days after the date the complaint is filed UNLESS IT IS IMPRACTICABLE TO DO SO. Complete the investigation within the one hundred (100) day period, the Commission shall dispose of all administrative proceedings related to the investigation not later than one (1) year after the date the complaint is filed.

(c) If the Commission is unable to complete an investigation within the time periods prescribed by subsection (b), the commission shall notify the complainant and the respondent in writing of the reasons for the delay.

Sec. 4. (a) The Commission may join a person not named in the complaint as an additional or substitute respondent if in the course of the investigation the Commission determines that the person should be accused of a discriminatory housing practice.

(b) In addition to the information required in the notice under Section 1 (f) (3) of this chapter, the Commission shall include in a notice to the respondent joined under this section an explanation of the basis for the determination that the person is properly joined as a respondent.

Sec. 5. (a) The Commission shall, during the period beginning with the filing of a complaint and ending with the filing of a charge or a dismissal by the Commission, to the extent feasible, engage in conciliation with respect to the complaint.

(b) A conciliation agreement is an agreement between a respondent and the complainant and is subject to Commission approval.

(c) A conciliation agreement may provide for binding arbitration or other methods of dispute resolution. Dispute resolution that results from a conciliation agreement may authorize appropriate relief, including monetary relief.

(d) A conciliation agreement shall be made public unless the complainant and respondent agree otherwise and the Commission determines that disclosure is not necessary to further the purposes of this article.

(e) Nothing said or done in the course of conciliation may be made public or used as evidence in a subsequent proceeding under this article without the written consent of the persons concerned.

(f) After completion of the Commission's investigation, the Commission shall make available to the aggrieved person and the respondent, at any time, information derived from the investigation and the final investigation report relating to that investigation.

Sec. 6. (a) If the Commission concludes at any time following the filing of a complaint that prompt judicial action is necessary to carry out the purposes of this article, the Commission may file a civil action for appropriate temporary or preliminary relief pending final disposition of the complaint in a circuit or superior court that is located in the county in which the alleged discriminatory housing practice occurred. This remedy shall be available in cases filed under the housing provisions only.

- (b) A temporary restraining order or other order granting preliminary or temporary relief under this section is governed by the Indiana Rules of Trial Procedure.
- (c) The filing of a civil action under this section does not affect the initiation or continuation of administrative proceedings under Section 14 of this chapter.

Sec. 7. (a) The Commission shall prepare a final investigative report showing the following:

- (1) The names and dates of contacts with witnesses.
- (2) A summary of correspondence and other contacts with the aggrieved person and the respondent showing the dates of the correspondence and contacts.
- (3) A summary description of other pertinent records.
- (4) A summary of witness statements.
- (5) Answers to interrogatories.

(b) A final report under this section may be amended if additional evidence is discovered.

Sec. 8. (a) The Commission shall determine based on the facts whether reasonable cause exists to believe that a discriminatory housing practice has occurred or is about to occur.

(b) The Commission shall make the determination Order subsection (a) not later than one hundred (100) days after the date a complaint is filed unless:

- (1) it is impracticable to make the determination; or
- (2) the Commission has approved a conciliation agreement relating to the complaint

(c) if it is impracticable to make the determination within the time period provided by subsection (b), the Commission shall notify the complainant and respondent in writing of the reasons for the delay.

(d) If the Commission determines that reasonable cause exists to believe that a discriminatory housing practice has occurred or is about to occur, the Commission shall immediately issue a finding of reasonable cause on behalf of the aggrieved person.

Sec. 9. (a) A charge issued under Section 8 of this chapter:

- (1) must consist of a short and plain statement of the facts on which the Commission has found reasonable cause to believe that a discriminatory housing practice has occurred or is about to occur;

- (2) must be based on the final investigative report; and
- (3) need not be limited to the facts or grounds alleged in the complaint

(c) Not later than twenty (20) days after the Commission issues a finding of reasonable cause, the Commission shall send a copy of the finding of reasonable cause with information concerning the election under Section 12 of this chapter to the following:

- (1) Each respondent, together with a notice of the opportunity for a hearing provided by Section 14 of this chapter.
- (2) Each aggrieved person on whose behalf the complaint was filed.

Sec. 10. (a) If the Commission determines that no reasonable cause exists to believe that a discriminatory housing practice has occurred or is about to occur, the Commission shall promptly dismiss the complaint.

(b) The Commission shall make public disclosure of each dismissal under this section.

Sec. 11. The Commission may not issue a finding of reasonable cause under this chapter regarding an alleged discriminatory housing practice after the beginning of the trial of a civil action commenced by the aggrieved party under federal or state law seeking relief with respect to that discriminatory housing practice.

Sec. 12. (a) A complainant, a respondent, or an aggrieved person on whose behalf the complaint was filed may elect to have the claim asserted in a finding of reasonable cause decided in a civil action as provided by Section 13 of this chapter.

(b) The election must be made not later than twenty (20) days after the date of receipt by the election person of service under Section (9) (b) of this chapter or, in the case of the Commission, not later than twenty (20) days after the date the finding of reasonable cause was issued.

(c) The person making the election shall give notice to the Commission and to all other complainants and respondents to whom the finding of reasonable cause relates.

Sec. 13. (a) If a timely election is made under Section 13 of this chapter The Commission at its expense shall provide counsel for the aggrieved person and not later than thirty (30) days after the

election is made, file a civil action on behalf of the aggrieved person seeking relief under this section in a circuit or superior court that is located in the county in which the alleged discriminatory housing practice occurred.

(b) An aggrieved person may intervene in the action.

(c) If the court finds that a discriminatory housing practice has occurred or is about to occur, the court may grant as relief any relief that a court may grant in a civil action under IC 22-9.5-7.

(d) If monetary relief is sought for the benefit of an aggrieved person who does not intervene in the civil action, the court may not award the monetary relief if that aggrieved person has not complied with discovery orders entered by the court.

Sec. 14. (a) If a timely election is not made under Section 12 of this chapter, the Commission shall provide the aggrieved person with counsel and set a date for a hearing on the finding of reasonable cause.

(b) Except as provided by subsection (c), Rules 11, 12 and 13 of the Gary Human Relations Commission govern a hearing and an appeal of a hearing under this section.

(c) A hearing under this section may not continue regarding any alleged discriminatory housing practice after the beginning of the trial of a civil action commenced by the aggrieved person under federal or state law seeking relief with respect to that discriminatory housing practice.

Sec. 15. (a) If the Commission determines at a hearing under Section 14 of this chapter that a respondent has engaged in or is about to engage in a discriminatory housing practice, the Commission may order the appropriate relief, including actual damages, reasonable attorney's fees, court costs and other injunctive or equitable relief.

(b) To vindicate the public interest, the Commission may assess a civil penalty against the respondent in an amount that does not exceed the following:

(1) Ten thousand dollars (\$10,000) if the respondent has not been adjudged by order of the Commission or a court to have committed a prior discriminatory housing practice.

(2) Except as provided by subsection (c), twenty-five thousand dollars (\$25,000) if the respondent has been adjudged by order of the Commission or a court to have committed one (1) other discriminatory housing practice during the five (5) year period ending on the date of the filing of the finding of reasonable cause.

(3) Except as provided by subsection (a), fifty thousand dollars (\$50,000) if the respondent has been adjudged by order of the Commission or a court to have committed two (2) or more discriminatory housing practices during the seven (7) year period ending on the date of the filing of the finding of reasonable cause.

(c) If the acts constituting the discriminatory housing practice that is the object of the finding of reasonable cause are committed by the same individual who has been previously adjudged to have committed acts constituting a discriminatory housing practice, the civil penalties in subsection (b) (2) and (b) (3) may be imposed without regard to the period of time within which any other discriminatory housing practice occurred.

(d) The Commission may sue to recover a civil penalty due under this section.

Sec. 16. A Commission order under Section 16 of this chapter does not affect a contract, a sale, an encumbrance, or a lease, that:

- (1) was consummated before the Commission issued the order; and
- (2) involved a bona fide purchaser, an encumbrancer, or a tenant who did not have actual notice of the finding of reasonable cause filed under this article.

Sec. 17. If the Commission issues an order with respect to a discriminatory housing practice that occurred in the course of a business subject to licensing or regulation by a governmental agency, the Commission shall, not later than thirty (30) days after the date of the issuance of the order:

- (1) send copies of the findings and the order to the governmental agency; and
- (2) recommend to the government agency appropriate disciplinary action.

Sec. 18. If the Commission issues an order against a respondent against whom another order was issued within the preceding five (5) years under Section 15 of this chapter, the Commission shall send a copy of each order issued under that section to the attorney general.

ARTICLE 10. FAIR HOUSING FUND

Sec. 1. The fair housing fund (hereafter referred to as "the fund") is established. The fund shall be administered by the Commission.

Sec. 2. Money deposited in the fund may be used only for administering this ordinance. Money in the fund does not revert to the city general fund at the end of a city fiscal year.

Sec. 3. Gifts and grants received as authorized by this ordinance shall be deposited to the credit of the fund.

Sec. 4. A court in a civil action brought under Article 8, or the Commission in an administrative hearing may award reasonable attorney's fees to the prevailing party and assess court costs against the non-prevailing party.

ARTICLE 11. ENFORCEMENT BY PRIVATE PERSONS

Sec. 1. (a) An aggrieved person may file a civil action in the circuit or superior court located in the county in which the alleged discriminatory practice occurred not later than one (1) year after the occurrence of the termination of an alleged discriminatory housing practice or the breach of a conciliation agreement entered into under this article, whichever occurs last, to obtain appropriate relief with respect to the discriminatory housing practice or breach.

(b) The one (1) year period does not include any time during which an administrative hearing under this article is pending with respect to a complaint or finding of reasonable cause under this article based on the discriminatory housing practice. The subsection does not apply to actions arising from a breach of a conciliation agreement.

(c) An aggrieved person may file an action under this section whether or not a complaint has been filed under IC 22-9.5-6 and without regard to the status of any complaint filed under IC 22-9.5-6.

(d) If the Commission has obtained a conciliation agreement with the consent of an aggrieved person, the aggrieved person may not file an action under this section with respect to the

alleged discriminatory housing practice that forms the basis for the complaint except to enforce the terms of the agreement.

(e) An aggrieved person may not file an action under this section with respect to an alleged discriminatory housing practice that forms the basis of a finding of reasonable cause issued by the Commission if the Commission has begun a hearing on the record under this article with respect to the finding of reasonable cause.

Sec. 2. If the court finds that a discriminatory housing practice has occurred or is about to occur in an action under this chapter, the court may award to the prevailing party the following:

- (1) Actual and punitive damages
- (2) Reasonable attorney's fees
- (3) Court costs
- (4) Subject to Section 3 of this chapter, any permanent or temporary injunction, temporary restraining order, or other order, including an order enjoining the defendant from engaging in the practice or ordering appropriate affirmative action.

Sec. 3. Relief granted under this chapter does not affect a contract, a sale, an encumbrance, or a lease that:

- (1) was consummated before the granting of the relief; and
- (2) involved a bona fide purchaser, an encumbrancer, or a tenant who did not have actual notice of the filing of a complaint or a civil action under this article.

Sec. 4. (a) The Commission may intervene in an action under this article if the Commission determines that the case is of general public importance.

(b) The Commission may obtain the same relief available to the Commission under IC 22-9.5-8-1(b)

ARTICLE 12. ENFORCEMENT BY COMMISSION

Sec. 1. (a) The Commission may file a civil action for appropriate relief if the Commission has reasonable cause to believe that:

- (1) a person is engaged in a pattern or practice of resistance to the full enjoyment of any right granted by this article; or

(2) a person has been denied any right granted by this article and that denial raises an issue of general public importance.

An action under this section may be filed in a circuit or superior court located in the county in which the alleged pattern, practice, or denial occurred.

(b) In an action under this section, the court may do the following:

(1) Award preventive relief, including a permanent or temporary injunction, restraining order, or other order against the person responsible for a violation of this article as necessary to assure the full enjoyment of the rights granted by this article.

(2) Award other appropriate relief, including monetary damages, reasonable attorney's fees, and court costs.

(3) To vindicate the public interest, assess a civil penalty against the respondent in an amount that does not exceed the following:

(A) Fifty thousand dollars (\$50,000) for a first violation

(B) One hundred thousand dollars (\$100,000) for a second or subsequent violation.

(C) a person may intervene in an action under this action if the person is:

(1) an aggrieved person to the discriminatory housing practice; or

(2) a party to a conciliation agreement concerning the discriminatory housing practice.

Sec. 2. The attorney, on behalf of the Commission or other party at whose request a subpoena is issued under this chapter, may enforce the subpoena in appropriate proceedings in the court in which the action is filed.

ARTICLE 13. PENDING SUITS. This Ordinance shall not be construed or held to repeal a former Ordinance whether such former Ordinance is expressly repealed or not, as to any act done, any penalty forfeiture or punishment so incurred or any right accrued or claim arising before the new Ordinance takes effect, save only that the proceedings thereafter shall conform to the Ordinance in force at the time of such proceeding, so far as practicable. If any penalty, forfeiture or punishment be mitigated by any provision of a new Ordinance, such provision may be, by the consent of the part affected, applied to any judgment announced after the new Ordinance takes effect.

Nothing contained in this or the preceding section shall be construed as abating any action now pending under or by virtue of any general Ordinance of the City herein repealed; or as discontinuing, abating, modifying or altering any penalty accrued or to accrue, or as affecting the liability of any person, firm or corporation, or as waiving any right of the City under any Ordinance or provision thereof in force at the time of passage of this Ordinance.

ARTICLE 14. SEVERABILITY. Each section and each provision or requirement of any section of this Ordinance shall be considered separable and the invalidity of any portion of enforceability of any other portion.

ARTICLE 15. REPEAL. All Ordinances in conflict, herewith, are hereby repealed.

ARTICLE 16. EFFECTIVE DATE. The effective date of this Ordinance shall be immediately upon its passage and publication according to law.

PENDING ORDINANCE 97-116
ORDINANCE NO. 6972
AS AMENDED 1-20-98
CERTIFICATION DATE _____
CERTIFIED BY _____
FAVORABLY _____
UNFAVORABLY _____

AN ORDINANCE TO ADD A NEW CHAPTER TO TITLE
OF THE MUNICIPAL CODE
PROMOTING AND ENCOURAGING GARY BUSINESS ENTREPRENEURSHIP

BE IT ORDAINED by the Common Council of the City of Gary, Indiana, as follows:

Section 1. New Chapter

There is hereby added to Title _____ of the Municipal Code of the City of Gary, Indiana, a new chapter, number _____ and entitled City of Gary Business Entrepreneurship Promotional Program (BEPP) which chapter is as follows:

Section 2. Title

This Ordinance shall be known as and may be cited as the "City of Gary Business Promotion Ordinance".

Section 3. Purpose

It is the public policy of the City of Gary to foster, promote, and encourage Gary business entrepreneurship and to promote local employment and full participation of all Gary citizens, partnerships, companies and corporations in the City's economy through a positive and continuing program within each Department, Division, Agency and Component of the City's government. This policy of promoting Gary businesses shall apply to every contractor, subcontractor or bidder holding or seeking a public contract with the City of Gary as well as to all procurement, bid-letting and/or purchasing activities of the City of Gary for the purchase of goods and services. This policy is also aimed at encouraging the establishment of Gary business enterprise and work-force make-up goals; incremental bonding procedures and other appropriate strategies designed to assist in the expansion of Gary businesses, the enhancement of the City's economic base and the increase of employment opportunities within the City of Gary.

Section 4. Definitions

- a. City of Gary - City of Gary, a municipal corporation located in the County of Lake, State of Indiana.
- b. Business Entrepreneurship - Commercial activity, employment, occupation or profession engaged in for gain, benefit, profit, advantage or livelihood.
- c. Gary Business - Shall mean that for the term of the contract:
 1. In the case of a sole proprietorship, the person's principal place of business and residence are located in the City of

Gary, or a majority of his/her employee are residents of the City. .

2. In the case of a partnership, a majority of the partners reside in the City of Gary, or the principal place of business of the partnership is located in the City, or a majority of the employees of the partnership reside in the City.
3. In the case of a corporation, a majority of its shareholders are residents of the City of Gary, or the principal place of business of the corporation is located in the City, or a majority of the employees are residents of the City.
4. In the case of a joint-venture, a majority of the enterprise must be owned by a resident or residents of the City of Gary and a majority of the enterprise must be based in the City of Gary.

d. Contractor - Shall include any person, partnership, corporation, association or joint venture seeking to be awarded a City of Gary contract or to sell goods or to provide services to the City of Gary or offering a proposal to sell goods or services to the City of Gary, and includes every subcontractor under such contract.

e. Subcontractor - Shall include any person, partnership, corporation, association or joint venture which supplies any of the work, labor, services, supplies, equipment, materials or any combination of the foregoing under an agreement with a City of Gary contractor.

f. Public Contract - Any contract awarded by the City of Gary for work, labor, services, supplies, equipment, goods, materials or any combination of the foregoing bid or non-bid, paid for in whole or in part with public funds of the City.

g. Bidder - Any person, partnership, corporation, association or joint venture which has submitted prescribed bid documents to the Board of Public Works or other Department, Division, Agency, or Component of the City of Gary, seeking award of a public contract.

h. Employee - The term "employee" shall not include any individual employed by his/her parents, spouse or child, or in the domestic service of any such person.

i. Department Head - An individual who is directly responsible for any Department, Division, Component or Agency of the City of Gary.

j. Non-Bid Contract - Any public contract let for the purchase of goods and/or services where taking of bids is not required, and which is done in accordance with the law.

- k. Professional Contract - Any public contract or proposal for professional services, including but not limited to Legal Services; Architectural Services; Engineering Services; Planning Services; Consulting Services and others, where taking of bids is not required and which is done in accordance with the law.
- l. Qualified Gary Citizen - a resident of the City of Gary possessing those skills and ability necessary to perform the job under consideration.

Section 5. Business Compliance Officer

- a. There is hereby created the position of Gary Business Compliance Officer (BCO) who shall have all authority necessary to effectively and expeditiously implement the terms and purpose of this ordinance. The Business Compliance Officer (BCO) shall work under the direction of the Deputy Mayor and the Mayor to administer and enforce the Gary Business Promotion Ordinance, established by Sections 2-9, inclusive; establish procedures to effectuate such sections; hold and conduct hearings relative to violations of the ordinance. He/she shall have at their disposal the necessary resources to carry out this responsibility, including the support, cooperation and assistance of the City's several Departments, Agencies, Divisions and other independent agencies who may be under contract with the City of Gary.
- b. Further, the Business Compliance Officer shall, as soon after passage of this ordinance as is practicable, establish procedures for pre-certifying Gary Businesses and maintain a listing of such pre-certified Gary Businesses that may be referred to from time to time by various agencies of the City of Gary in the course of letting contracts and other procurement activities.

Section 6. Promotion of Gary Businesses

Because Gary-based and owned businesses have been underrepresented and underutilized in the past regarding receipt of City contracts, the need exists to encourage and promote the participation of such businesses in all contracts let by the City of Gary, its Agencies, Divisions and Components. Therefore, the following conditions shall be met prior to the letting of said contracts.

a. Non-Bid Contracts

- 1. That a minimum of two-thirds (2/3s) of the contract dollars shall go to qualified and responsible Gary Businesses.
- 2. That Contractors may subcontract to another Gary Business for a portion of the work and be credited with Gary Business participation from both the Contractor's portion and the Subcontractor's portion of the Contract.

3. That Contractors when submitting proposals are required to include the name(s) of each Gary Business the Contractor will use as a Sub-Contractor, Supplier and the portion of the contract dollars to be expended with each.
- b. Non-Bid Purchase of Goods, Equipment and Supplies by the City of Gary
 1. Where the price for goods, equipment or supplies offered by a Gary Business does not exceed the price for the same goods, equipment or supplies offered by a non-Gary business by more than ten percent (10%), the City of Gary may accept the proposal of the Gary Business, assuming said goods, equipment or supplies are comparable in quality.
- c. Professional Services
 1. A minimum of two-thirds (2/3s) of all Professional Services contract dollars shall go to responsible and qualified Gary Businesses, unless such qualified professional services are not available within the City of Gary. Then, and in that event, the City of Gary may find such services wherever they are available.
- d. Work Force Requirements
 1. A minimum of two-thirds (2/3s) of the aggregate work force utilized by Contractors and Subcontractors on a public contract let by the City of Gary shall be qualified residents of the City of Gary and said two-thirds (2/3s) aggregate Gary resident work force requirement is to be equally distributed among the various job classifications, i.e. laborers; carpenters; electricians; professional services, used by the Contractor on the project. It is the responsibility of the Contractor to establish the fact that there are insufficient qualified Gary residents available to fulfill this requirement within a reasonable time, then and in that event, the said Contractor may fill said positions with non-Gary residents. However, the Business Compliance Officer must first certify such insufficiency.
 2. Notwithstanding the above, where a prospective Gary employee is not a member of a union for reasons involving racial, or gender discrimination, said prospective employee shall not be automatically barred from working on the project, nor disqualified for employment by the Contractor or Sub-Contractor.
- e. Award of Contracts By Bid

In evaluating the price of any vendor's or contractor's bid or proposal for goods or

services, the bids or proposals shall be evaluated as though the prices proposed or bid by a **Gary Business** were ten percent (10%) lower than actually proposed or bid.

1. Pursuant to the above, the Gary Board of Public Works shall adopt rules to give a preference to a **Gary Business** that submits a bid under this section if the following factors apply:
 - a. One or more businesses from outside the City of Gary submits a bid.
 - b. The **Gary Business** submits the lowest, most responsible and most responsive bid amount the **Gary Businesses** that bid on the contract.
2. The said preference may not exceed ten percent (10%) of the total amount of the lowest, most responsible and most responsive bid by a **Gary Business**.
3. The Gary Board of Public Works shall adjust the lowest, most responsible, most responsive bid by a **Gary Business**, and if after said adjustment a **Gary Business** is the lowest, most responsible and most responsive bid, the Gary Board of Public Works may award said contract to the said **Gary Business**, at the price originally bid.
- f. Other departments, divisions, components and agencies of the City of Gary letting contracts shall follow the procedures outlined in e. 1, 2, and 3 above.

Section 7. Failure to Comply With Regulations and Procedures

- a. In the event that any City official awards a contract for goods or services after this ordinance is in force without complying with the provisions of this ordinance, such contract shall not be binding on the City of Gary, and said City official may be subject to disciplinary action, up to and including discharge; further, the Mayor, with the assistance of the Corporation Counsel or Special Counsel, shall proceed in any court of competent jurisdiction to recover any City funds expended in accordance with the provisions of such contract from the Contractor and/or the City official(s) who awarded the contract without compliance herewith.
- b. Failure on the part of any Contractor, Subcontractor to comply with the provisions of this Ordinance will subject the non-complying party(ies) to the following sanctions:
 1. The City of Gary may reject the bid or proposal of the non-complying party.
 2. In the event that the contract has already been let, the City of Gary may declare the same null and void or may

withhold contract payments until the Business Compliance Officer certifies that the non-complying party(ies) is/are in compliance.

3. In the event the contract is declared null and void, the procedure set out in 7.a above shall be followed.

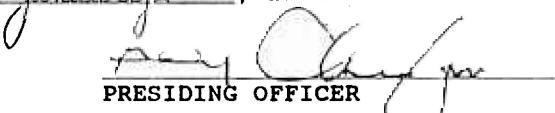
Section 8. Severability Clause

Each section and each provision or requirement of any Section of this Ordinance shall be considered separable, and the invalidity of any portion of this Ordinance shall not affect the validity or enforceability of any other portion.

Section 9. Enacting Clause

This Ordinance shall be in full force and effect from and after the date of its passage and publication in accordance with the law.

PASSED and ADOPTED, by the Common Council of the City of Gary, Indiana, this 20th day of January, 1998.


PRESIDING OFFICER

ATTEST:


Katie Hall
CITY CLERK

Presented by me to the Mayor for his approval and signature this 21st day of January, 1998.


Katie Hall
CITY CLERK

APPROVED and SIGNED by me this 20th day of January, 1998.


MAYOR, CITY OF GARY, INDIANA

PREPARED BY: CITY OF GARY LAW DEPARTMENT (HLC/tce)

SPONSORED BY: HONORABLE MAYOR SCOTT L. KING
ALEX CHERRY, COUNCIL PRESIDENT

COMMITTEE ASSIGNMENT	Reported-out/Date	
1st Reading/Date	Committee Hearing/Date	
2nd Reading/Date	Public Hearing/Date	
3rd Reading/Date	Final Reading/Date	
Passed/Date	Defeated/Date	Deferred/Date
Tabled/Date	Override/Date	Adopted/Date
Publication/Date	Community Hearing/Date	
Veto	Pocket Veto	Adopted

SECTION 00008

PRINCIPLES OF AFFIRMATIVE ACTION SUGGESTED STEPS FOR A PROGRAM

A contractor, subcontractor, supplier, or bidder holding or seeking a public contract with the City of Gary assumes the obligation to take affirmative action to assure equal employment opportunity in all phases of employment, regardless of race, religion, color, sex, handicap or national origin.

The following information is provided to assist Bidders in developing an acceptable affirmative action program:

1. Write out an Equal Employment Opportunity Policy for your company. Make this policy known to all your employees and potential sources of employees and to your subcontractors, asking their cooperation. Use every appropriate means (Bulletin boards, Handbooks, letters, etc.) to get your points across. Be sure you are understood. (One way is to ask for signed acknowledgement and assurances of cooperation.)
2. Appoint a top management official as your Equal Employment Opportunity Officer (or equivalent title) to coordinate company efforts, advise and assist your key staff, including superintendents and foremen, and to serve as a focal point for any complaints.
3. Assure nondiscriminatory recruiting by taking appropriate steps such as:
 - a. Placing employment advertisements in newspapers that serve the largest number of minority-group people in the recruiting area.
 - b. Recruiting through schools and colleges having substantial proportions of minority students.
 - c. Maintaining systematic contracts with minority and human relations organizations, leaders, and spokesmen to encourage referral of qualified minority applicants (including those in related work such as fabricating shops and home repair) and minority youths interested in construction occupations.
 - d. Encouraging present employees to refer minority applicants.
 - e. Making it known to all recruitment sources that qualified minority members are being sought for consideration for supervisory, journeyman, office and technical jobs as well as laborer or other entry positions.

4. Assure nondiscriminatory hiring by taking appropriate steps, such as:
 - a. Instructing personally those of your staff who make hiring decisions that minority applicants for all jobs (including supervisory, journeyman, office and technical jobs) are to be considered without discrimination;
 - b. Where union agreements exist-
 1. Cooperating with your unions (perhaps through your contractor's organizations) in the development of programs to assure qualified minority persons – including apprentice – of equal opportunity for employment in the construction trades;
 2. Including an effective nondiscrimination clause in new or renegotiated union agreements;
 3. Clearly establish your right to hire in a manner that will integrate your work force.
 - c. Using as many apprentices and summer and part-time trainees – from minority groups – as work need and union agreements will permit.
5. Assure maximum use of apprenticeship and other training to help equalize opportunity for minority persons, taking appropriate steps, such as:
 - a. Sponsoring and assisting minority youths as well as others to enter pre-apprenticeship and apprentice training, and making such training available to the maximum extent within your company;
 - b. Actively encouraging minority employees as well as others to increase their skill and job potential through participation in training and education programs, and helping to assure that such programs are adequate and are in fact available to minority persons;
 - c. Actively participating in Joint Apprenticeship Committees;
 - d. Working with civic, labor, and contractors organizations (helping to organize a sponsoring group, if necessary) to conduct an open-admission training resource for the construction trades in your area.

Termination actions also should indicate whether voluntary or involuntary. This report will be used for future affirmative action review purposes, if and when a business bids for future goods and services contracts with the City of Gary. This Report shall be submitted to the City of Gary on the 15th day of the month following the end of the Bidder's Affirmative Action Program year. Failure to submit this required report can affect future bid considerations for any public contract with the City of Gary.

SECTION 00330

BID BOND

The bid bond for this Project is AIA Document A310, 2010 Edition, a copy of which is bound hereinafter.

END OF SECTION

Bid Bond

CONTRACTOR:

(Name, legal status and address)

« >< »
« >

SURETY:

(Name, legal status and principal place
of business)

« >< »
« >

OWNER:

(Name, legal status and address)

« >< »
« >

BOND AMOUNT: \$ « >

PROJECT:

(Name, location or address, and Project number, if any)

«CM Delivery»
« >
« >

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

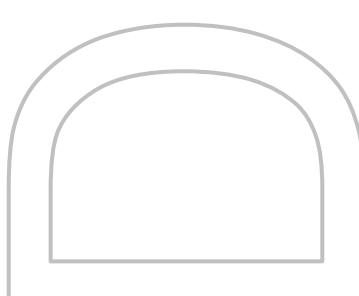
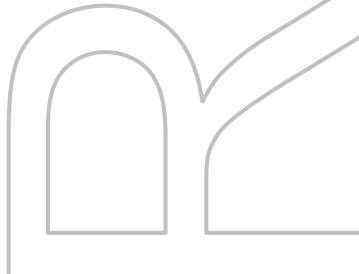
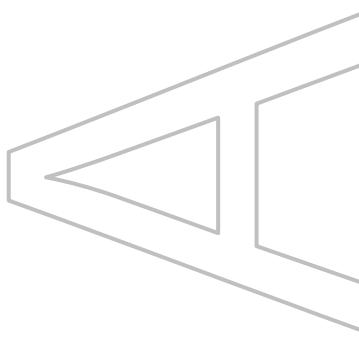
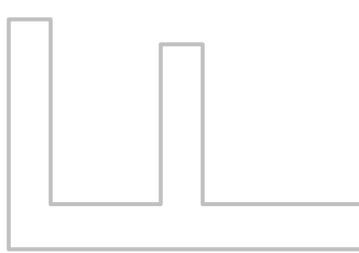
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Signed and sealed this « » day of « », « »

(Witness)

(Witness)

« » (Contractor as Principal)	(Seal)
« » (Title)	
« » (Surety)	(Seal)
« » (Title)	



SECTION 00500
SCHEDULE OF ALLOWANCES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements governing the following:
 - 1. Lump-sum allowances.
 - 2. Material allowances.
 - 3. Contingency allowances.
 - 4. Testing and inspecting allowances.
- B. See Division 1 Section "Unit Prices" for procedures for using unit prices.
- C. See Division 1 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.2 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.3 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.4 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.5 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products, services and materials ordered by Owner under allowance and shall include taxes, freight, delivery and installation where applicable to Project site.
- B. Contractor's costs for overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.6 MATERIAL ALLOWANCES

- A. Allowance amounts shall include the base cost of materials, supplier taxes, and standard delivery to the project site.
- B. Costs for labor, installation, overhead, profit, equipment, supervision, waste, and markup shall be included elsewhere in the Contract Sum and shall not be deducted from the allowance.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are not included in the allowance and are part of the Contract Sum. Costs in the allowance include delivery, installation, taxes, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.9 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Unforeseen Conditions: \$35,000.
- B. Refer to individual specification sections for material cost allowances.

END OF SECTION

SECTION 00550
SCHEDULE OF ALTERNATES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Trade Contractor's Base Bid to incorporate alternate into the Work. No other adjustments are made to the Base Bid Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Alternates will be accepted or rejected at owner's discretion depending on the funding available for the project at the time of award. The bid award will be based on a combination of their Base Bid proposal AND the amount of each accepted alternate.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

1.4 SCHEDULE OF ALTERNATES

Alternate #1: See Add Alternate #1 on sheet A-1.1.0. Provide cost for labor and material to renovate existing offices 126.0, 129.0, 130.0, and 131.0 into Vaccine Exam Room #118.0, Medical Storage #119.0, New Offices #120.0, #121.0, #122.0, and New Flex Office #123.0 as detailed in the drawings. Work to include, but not be limited to, paint, drywall, ceilings, flooring, electric, and mechanical.

Alternate #1A: Keep configuration of Existing Offices 126.0, 129.0, 130.0, and 131.0 as indicated in base bid. Provide cost for labor and material to repair (match & patch) existing drywall as required and paint all walls. Provide one accent color per room.

Alternate #1B: Provide cost to install new carpet (CPT) and vinyl base in the rooms indicated in Alternate #1A.

Alternate #2: Provide cost for labor and material to repair (match & patch) existing drywall as required and paint all walls in Existing Offices #117.1, #132.0, #133.0, #134.0, #135.0, #136.0, #137.0, #138.0 and Existing Staff Lounge #146.0. Provide one accent color per room. Remove existing wood paneling in Offices #117.1 and #136.0, repair/ finish existing drywall and paint.

Alternate #2A: Provide cost for labor and material to install new flooring for rooms described in Alternate #2. All rooms to receive new carpet (CPT) with vinyl base with the exception of Existing Staff Lounge #146.0. Existing Staff Lounge to receive new vinyl plank flooring (VPF) with vinyl base.

Alternate #3: Provide cost for labor and material to repair (match & patch) existing drywall as required, and paint all walls in Existing Corridors #113.0, #114.0, #139.0, Existing Vestibule #140.0 and New Corridor #114.1. Provide one accent color per corridor.

Alternate #3A: Provide cost for labor and material to install new vinyl plank flooring (VPF) and vinyl base in the corridors and vestibule indicated in Alternate #3.

Alternate #4: Provide cost for labor and material to install solid surface material countertops in lieu of plastic laminate countertops as indicated in the drawings.

END OF SECTION

SECTION 00900

STANDARD FORM OF AGREEMENT

The Standard Form of Agreement between Owner and Contractor where the basis of payment is a Stipulated Sum AIA Document A101 – 2017 Edition is attached hereto and must be executed upon Owner acceptance of Contractor's Bid Proposal.

END OF SECTION

DRAFT AIA® Document A101™ - 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« »
« »
« »
« »

and the Contractor:
(Name, legal status, address and other information)

« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

« »
« »
« »

The Architect:
(Name, legal status, address and other information)

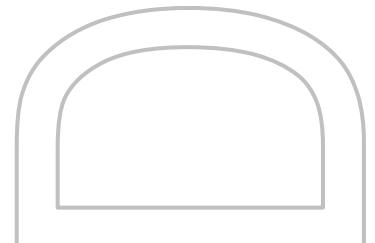
« »
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The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.



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TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

The date of this Agreement.

A date set forth in a notice to proceed issued by the Owner.

Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

Not later than () calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item

Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item

Price

Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:

(Identify each allowance.)

Item

Price

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price per Unit (\$0.00)

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

« »

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

« »

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

« » % « »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »

« »

« »

« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

Arbitration pursuant to Section 15.4 of AIA Document A201–2017

Litigation in a court of competent jurisdiction

Other (Specify)

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« »

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.3 The Contractor's representative:

(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

.5 Drawings

Number

Title

Date

.6 Specifications

Section

Title

Date

Pages

.7 Addenda, if any:

Number

Date

Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:

(Insert the date of the E204-2017 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

« »

(Printed name and title)

CONTRACTOR (Signature)

« »

(Printed name and title)

SECTION 00950

AIA GENERAL CONDITIONS

1.1 GENERAL CONDITIONS

A. AIA Document A201-2017, General Conditions of the Contract for Construction, is the General Conditions of the Contract.

END OF SECTION

DRAFT AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

« »
« »

THE OWNER:

(Name, legal status and address)

« »
« »

THE ARCHITECT:

(Name, legal status and address)

« »
« »

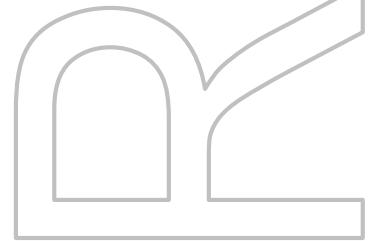
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ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, *Guide for Supplementary Conditions*.



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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

G202™-2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor’s control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor’s Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor’s subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor’s right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act

or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and

approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

DOCUMENT 00960

SUPPLEMENTARY CONDITIONS - AIA

1.1 SUMMARY

- A. Document Includes:
 - 1. Supplementary Conditions.
- B. Related Documents:
 - 1. Document 00900 - Agreement - AIA.
 - 2. Document 00950 - General Conditions - AIA.

1.2 SUPPLEMENTARY CONDITIONS

- A. These Supplementary Conditions modify the General Conditions of the Contract for Construction, AIA Document A201-2017, and other provisions of the Contract Documents as indicated below. All provisions which are not so modified remain in full force and effect.
- B. The terms used in these Supplementary Conditions which are defined in the General Conditions of the Contract for Construction, AIA Document A201-2017, have the meanings assigned to them in the General Conditions.

ARTICLE 1.1 - BASIC DEFINITIONS

Add the following subparagraphs:

- 1.1.9 Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- 1.1.10 Furnish: To supply and deliver, unload, inspect for damage.
- 1.1.11 Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.
- 1.1.12 Provide: To furnish and install.
- 1.1.13 Match & Patch: Patch work to match existing adjacent work in material, texture, and finish including filling any voids, holes, or missing materials.

ARTICLE 1.2 - CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following subparagraph:

1.2.4 Sections of Division 1 - General Requirements govern the execution of the work of all sections of the specifications.

ARTICLE 2 – OWNER

2.1.1 The Owner is the City of Gary, Indiana, and their agents and employees.

ARTICLE 3.6 – TAXES

3.6.1 This project has tax-exempt status.

ARTICLE 3.7 – PERMITS, FEES, AND NOTICES

3.7.1 Building permits fees through the City of Gary shall be waived.

3.7.6 All contractors and subcontractors are to be licensed in the City of Gary.

ARTICLE 3.8 – ALLOWANCES – SEE SPEC SECTION 00500

ARTICLE 7 – CHANGES IN THE WORK

7.1.4 The following fees apply to Changes in the Work:

1. 10 percent overhead and profit on the net cost of Work performed by the Contractor;
2. On Work deleted from the Contract, credit to the Owner shall be the Architect approved net cost plus 2/3 of the overhead and profit percentage noted above.

7.1.5 The Agreement identifies the overhead and profit fees applicable to Changes in the Work, whether additions to or deductions from the Work on which the Contract Sum is based and identifies the fees for subcontract work for changes (both additions and deductions) in the Work. The Contractor shall apply fees as noted, to the Subcontractor's gross (net plus fee) costs on additional work.

ARTICLE 8 - TIME

Add the following subparagraph:

8.1.5 Contract Time is identified in Document 00250- Invitation to Bid.

ARTICLE 11 – INSURANCE AND BONDS

A. Insurance Policy Requirements

1. All insurance policies required under the terms hereof shall be executed by companies authorized to do business in the State of Indiana and proof of such authority shall be furnished to the Owner prior to the signing of the Contract. All insurance policies shall be in form and all other particulars satisfactory to the

Owner.

2. The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required and shall not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been obtained and approved.

B. Contractors' Insurance:

1. Hold Harmless -- In addition to Liability imposed by the law upon Contractor on account of bodily injury or death suffered through Contractor's negligence, which liability is not impaired or otherwise affected hereby, Contractor hereby assumes in all cases not embraced within such legal liability, obligation to save the Owner and the Architect harmless and indemnify them for every expense, liability or payment (voluntary payments excepted) by reason of any injury to any person or persons, including death suffered through any act or omission of Contractor, or Subcontractor or anyone directly or indirectly employed by either of them in the prosecution of any work included under this Contract. Contractor shall protect the Owner and the Architect against any and all claims for property damage caused by his operations.

C. Compensation and Occupational Disease Insurance

The Contractor shall take out and maintain during the life of this contract, Workmen's Compensation and Occupational Disease Insurance, Employers Liability, for all of his employees employed at the site of the project, in full compliance with the statutes of the project, in full compliance with the statutes of Indiana applicable thereto, and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation and Occupation disease Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project are not protected under Workmen's Compensation statute, the Contractor shall provide and shall cause each subcontractor to provide insurance coverage equal to that provided under the Workmen's Compensation statute for the protection of his employees not otherwise protected.

D. Workmen's Compensation and Employer's Liability Insurance in amounts sufficient, in the opinion of the Contractor, the Owner, and the Architect, to protect the Owner, the Architect, the Contractor and the Subcontractors from all liability for bodily injury, sickness, or disease (including death resulting at any time therefrom) of any of their employee, including all liability or damage which may arise by virtue of any statute or law in force or which may hereafter be enacted.

E. Public Liability and Property Damage Insurance

Contractor shall effect and maintain during life of this Contract Commercial Public

Liability including Personal Injury and Property Damage Liability Insurance (construed as including Contractor's Contingent or Protective Insurance if necessary to protect the Contractor from damage claims arising from any operation under this contract) as shall protect him and any Subcontractors performing work covered by this Contract, from claims for damage for personal injury, including accidental death, as well as from claims for property damage which may arise from operations under this Contract, whether such operations by himself or by any Subcontractor, or anyone directly or indirectly employed by either of them, and the amounts of insurance shall be as follows:

- 1 Contractor's liability insurance shall be a \$2,000,000.00 Single Limit Comprehensive General Liability Insurance Policy covering all his operations on an occurrence basis with the following coverages included:
 - a. Bodily Injury Liability
 - b. Property Damage Liability
 - c. Products Liability (including contractual) (Broad Form)
- 2 General Contractor agrees to continue Completed Operations coverage for one (1) year after the work is accepted by the Owner. Commercial General Liability shall include coverage on: Premises, Operations, Independent Contractors (Protective Liability), Products and Completed Operations, Contractual Liability as may be assumed and insurable under this contract. There shall be no exclusions for special hazards under Property Damage for "c," collapse caused by grading or excavation: "u," underground property: "x," explosion or blasting.
- 3 Contractor shall require Subcontractors, if any, not protected under Contractor's insurance policies to take out and maintain insurance of such nature in the following amounts:
 - F. Subcontractor's Public Liability and Property Damage Insurance -- Contractor shall require each of his Subcontractors to procure and maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage Insurance of the type and of the limits specified in Subparagraph 3 above.
 - G. The Contractor's Commercial General Liability Insurance shall include premises – operations (including explosion, collapse and underground coverage) elevators, independent contractors, products liability, completed operations, and blanket contractual liability on all written contracts, all including broad form property damage coverage.
- H. The insurance shall name the Owner and Architect as an additional insured and shall be written for the greater of the following limits, or those required by law.
 1. Workers' Compensations
 - a. State: Statutory
 - b. Applicable Federal Statutory
 - c. Employer's Liability \$100,000 per Accident
\$100,000 Disease, Policy Limit
\$100,000 Disease, Each Employee

- d. Comprehensive General Liability (including Premises- Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage)
 - 1. Bodily Injury: \$1,000,000 Each Occurrence
\$2,000,000 Annual Aggregate
 - 2. Property Damage: \$1,000,000 Each Occurrence
\$2,000,000 Annual Aggregate
- 2. Products and Completed Operations to be maintained for two years after Substantial Completion: \$5,000,000 Aggregate
- 3. Property Damage Liability Insurance shall provide X, C, and U coverage.
- 4. Broad Form Property Damage Coverage shall include Completed Operations.
- I. Contractual Liability
 - 1. Bodily Injury: \$1,000,000 Each Occurrence
\$2,000,000 Annual Aggregate
 - 2. Property Damage: \$1,000,000 Each Occurrence
\$2,000,000 Annual Aggregate
- J. Personal Injury, with Employment Exclusion deleted: \$2,000,000 Annual Aggregate
- K. Business Auto Liability (including owned, non-owned, and hired vehicles):
 - 1. Bodily Injury: \$1,000,000 Each Person
\$1,000,000 Occurrence
 - 2. Property Damage: \$1,000,000 Each Occurrence
- L. For all worker's compensation and employer's liability insurance required hereby, Contractor shall require waiver of subrogation for itself and for all subcontractors, or others performing Work on the Project pursuant to the terms of Contractor's Contract with Owner.
- M. In addition to the above, each Prime Contractor will be required to verify that he carries an Umbrella or Blanket Excess Liability insurance coverage in an amount not less than \$3,000,000.00.
- N. All risks of Physical Loss (including Fire and Extended Coverage). The General Contractor at his own expense shall provide fire and extended coverage insurance protection for materials and equipment belonging to the Contractor which is not to be worked into the building, and the Owner assumes no responsibility for fire and extended coverage or loss on such scaffolding, equipment or materials which are not be worked into the building. During the entire construction period, the General Contractor shall provide extinguishers of the type for the intended protection as approved by NFPA and OSHA and shall provide such extinguisher in each construction shed and temporary office, as well as in other locations are reasonably required, and all other fire protection reasonably required, to properly protect the project, and to comply fully with the requirements of insurance underwriters for the project and municipal county and state authorities.
- O. Owner Furnished Insurance (Builder's Risk Insurance)

1. Fire, Extended Coverage, Vandalism and Malicious Mischief Insurance -- Owner shall effect and maintain Fire, Windstorm and Extended Coverage Insurance upon all work to one hundred percent (100%) of the insurable value thereof, including all items of labor and materials connected therewith in or adjacent to the structure, materials in place or to be used as part of the permanent construction. This insurance does not cover any tools owned by mechanics, any tools, equipment, scaffolding, stagings, towers, forms, etc., rented by the Prime Contractor. This insurance shall be extended to include vandalism.
2. Each Prime Contractor will be named as an Additional Insured.
3. The Owner shall furnish the Contractor, if so requested, copies of the Owner Insurance policies.
4. The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this paragraph, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors.
5. The Owner as trustee shall have power to adjust and settle any loss with the insurance unless one of the parties in interest shall object in writing within five days after the occurrence of loss to the Owner's exercise of this power; and if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5 of General Conditions. The Owner as trustee shall in that case, make settlement with the insurers in accordance with the directions of such arbitrators. If distribution of the insurance proceeds by arbitration is required, the arbitrators will direct such distribution.
6. The Architect shall be listed as co-insured on the Builder's Risk Policy.

ARTICLE 11.5 - PERFORMANCE BOND AND PAYMENT BOND

Add the following subparagraphs:

11.5.3 The Contractor shall furnish bonds to the Owner in the following amounts:

- .1 Furnish a 100 percent Performance Bond on a standard surety bond form.
- .2 Furnish a 100 percent Payment Bond on a standard surety bond form.

END OF DOCUMENT

SECTION 00970

PERFORMANCE AND PAYMENT BONDS

Performance and Payment Bonds AIA Documents A312 – 2010 Edition are attached hereto and must be provided upon execution of Standard Form of Agreement between Owner and Contractor. The Bond sum shall equal one hundred percent (100%) of the amount of the work, with a surety having a Best's rating of A minus or better.

END OF SECTION

Payment Bond

CONTRACTOR:

(Name, legal status and address)

« »
« »

SURETY:

(Name, legal status and principal place of business)

« »
« »

OWNER:

(Name, legal status and address)

« »
« »

CONSTRUCTION CONTRACT

Date: « »

Amount: \$ « »

Description:

(Name and location)

«CM Delivery»

« »

BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond:

« »

None

« »

See Section 18

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

Signature:

Name and « »

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

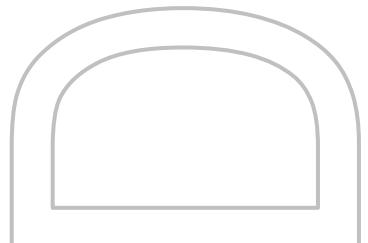
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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 **Claim.** A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 **Claimant.** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company:

(Corporate Seal)

SURETY

Company:

(Corporate Seal)

Signature:

Name and Title: « »« »

Address: « »

Signature:

Name and Title: « »« »

Address: « »

Performance Bond

CONTRACTOR:

(Name, legal status and address)

« »
« »

SURETY:

(Name, legal status and principal place of business)

« »
« »

OWNER:

(Name, legal status and address)

« »
« »

CONSTRUCTION CONTRACT

Date: « »

Amount: \$ « »

Description:

(Name and location)

«CM Delivery»

« »

BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond:

« »

None

« »

See Section 16

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

Signature:

Name and « »

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

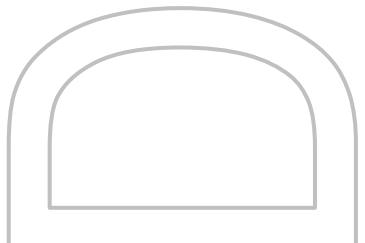
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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company:

(Corporate Seal)

SURETY

Company:

(Corporate Seal)

Signature:

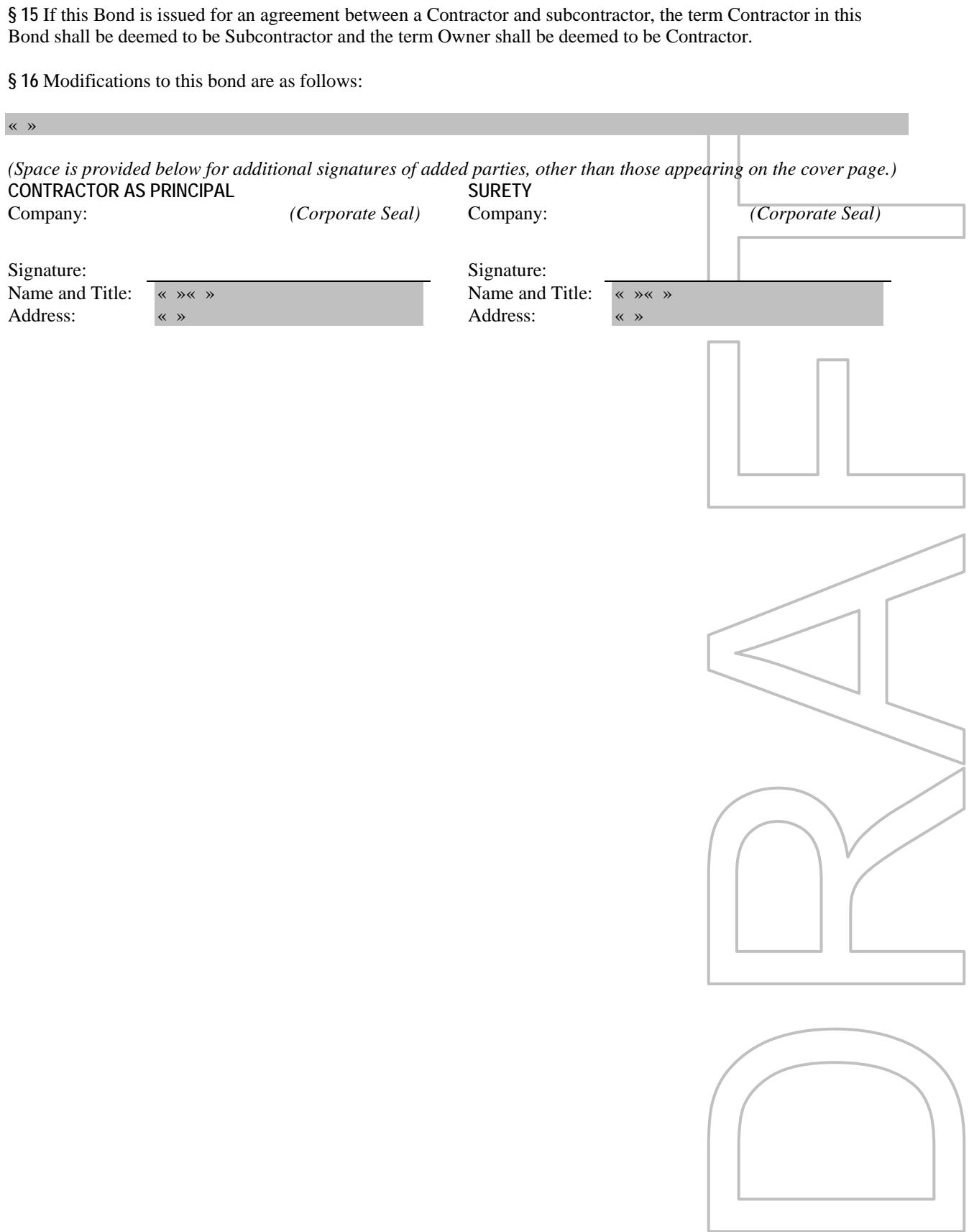
Name and Title: « »« »

Address: « »

Signature:

Name and Title: « »« »

Address: « »



SECTION 01001

BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Summary:
 - 1. Contract description.
 - 2. Work by Owner.
 - 3. Contractor's use of premises.
 - 4. Specification conventions.
 - 5. Special Qualifications
- B. Price and Payment Procedures:
 - 1. Schedule of values.
 - 2. Applications for payment.
 - 3. Change procedures.
 - 4. Alternates.
- C. Administrative Requirements:
 - 1. Coordination.
 - 2. Field engineering.
 - 3. Preconstruction Meetings.
 - 4. Progress meetings.
- D. Submittals:
 - 1. Submittal procedures.
 - 2. Construction progress schedules.
 - 3. Proposed products list.
 - 4. Product Data
 - 5. Shop drawings.
 - 6. Samples.
 - 7. Manufacturer's instructions.
 - 8. Manufacturer's certificates.
- E. Quality Requirements:
 - 1. Tolerances.
 - 2. References.
 - 3. Manufacturer's field services and reports.
 - 4. Examination.
 - 5. Preparation.
- F. Temporary Facilities and Controls:
 - 1. Temporary water service.
 - 2. Parking.
 - 3. Progress cleaning and waste removal.

4. Fire prevention facilities.
5. Barriers.
6. Enclosures.
7. Protection of installed work.
8. Pollution and environmental control.
9. Removal of utilities, facilities, and controls.

G. Product Requirements:

1. Substitutions.

H. Execution Requirements:

1. Closeout procedures.
2. Final cleaning.
3. Demonstration and instructions.
4. Protecting installed construction.
5. Warranties.

1.2 CONTRACT DESCRIPTION

A. Work of the Project to include Interior Renovations to the Hudson Campbell Sports and Fitness Center as detailed in the Contract Documents.

1.3 WORK BY OWNER

A. Items noted as NIC (Not in Contract).

1.4 CONTRACTOR'S USE OF PREMISES

A. Project Access: Work to commence during normal business hours.

B. Contractor parking will be permitted where approved by the Owner.

1.5 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.6 SPECIAL QUALIFICATIONS

1.7 SCHEDULE OF VALUES

A. Submit schedule on AIA Form G703.

B. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.

1.8 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on AIA Form G702 and G703.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly

1.9 CHANGE PROCEDURES

- A. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's estimated price quotation or Contractor's request for Change Order as approved by Architect.
- B. Change Order Forms: AIA G701
- C. Unit Price Change Order: For pre-determined unit prices and quantities, Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

1.10 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option.
- B. Coordinate related Work and modify surrounding Work as required.

1.11 COORDINATION

- A. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.
- C. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.
- D. In finished areas, conceal pipes, ducts, and wiring within construction.

1.12 FIELD ENGINEERING

- A. Establish elevations, lines, and levels and certify elevations and locations of the Work conform with Contract Documents.

- B. Verify field measurements are as indicated on shop drawings or as instructed by manufacturer.

1.13 PRECONSTRUCTION MEETING

- A. A Preconstruction Meeting will be scheduled after the award of the contract.

1.14 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.
- B. Architect to preside at meetings, record minutes, and distribute copies.

1.15 SUBMITTAL PROCEDURES

- A. Provide Submittals to architect in electronic (PDF) format.
- B. Submittal form to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.
- C. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- D. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.
- E. Revise and resubmit submittals as required; identify changes made since previous submittal.

1.16 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 15 days after date of Notice to Proceed for Architect review.
- B. Submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission.
- C. Submit horizontal bar chart with separate line for each major section of Work or operation identifying first work day of each week.

1.17 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.18 PRODUCT DATA

- A. Product Data:
 - 1. Submitted to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
 - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.
- B. Submit number of copies which Contractor requires, plus three copies which will be retained by Architect.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this project.

1.19 SHOP DRAWINGS

- A. Shop Drawings
 - 1. Submitted to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
 - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.
- B. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- C. Submit number of opaque reproductions Contractor requires, plus three copies which will be retained by Architect.

1.20 SAMPLES

- A. Samples for Review:
 - 1. Submitted to Architect for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
 - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.
- B. Samples For Selection:
 - 1. Submitted to Architect for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from full range of manufacturer's standard colors, [in textures, and patterns for Architect selection.

3. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.
- C. Submit samples to illustrate functional and aesthetic characteristics of Product.
- D. Submit samples of finishes from full range of manufacturer's standard colors and in custom colors selected, textures, and patterns for Architect's selection.

1.21 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, in quantities specified for Product Data.

1.22 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification sections, submit certifications by manufacturer to Architect, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.23 TOLERANCES

- A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply fully with manufacturer's tolerances.

1.24 REFERENCES

- A. Conform to reference standards by date of issue current as of date of Contract Documents.
- B. When specified reference standard conflicts with Contract Documents, request clarification from Architect before proceeding.

1.25 MANUFACTURER'S FIELD SERVICES AND REPORTS

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to furnish qualified staff personnel to observe site conditions and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturer's written instructions.

1.26 EXAMINATION

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify utility services are available, of correct characteristics, and in correct location.

1.27 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.28 TEMPORARY WATER SERVICE

- A. If any Contractor requires water for his Work or personnel, then that Contractor shall be responsible for providing temporary water and water hoses, including any costs associated thereto, at no additional cost to the project.

1.29 CONTRACTOR FACILITIES

- A. Contractor to provide jobsite trailer for construction meetings.
- B. Contractor to provide suitable toilet facilities for the use of all trade contractors for the duration of the project.

1.30 PARKING

- A. Coordinate parking for construction personnel with Owner.

1.31 PROGRESS CLEANING AND WASTE REMOVAL

- A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition. Contractor must provide his own dumpster.

1.32 FIRE PREVENTION FACILITIES

- A. Smoking is prohibited.
- B. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

1.33 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities.

1.34 ENCLOSURES

- A. Provide temporary, insulated weather tight and secure enclosures to exterior openings to permit acceptable working conditions and protection of the Work.
- B. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.35 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.

1.36 POLLUTION AND ENVIRONMENTAL CONTROL

- A. Provide dust control to allow for proper execution of the Work.

1.37 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.38 SUBSTITUTIONS

- A. Instructions to Bidders specify time for submitting requests for Substitutions during bidding period to requirements specified in this section.
- B. Substitutions will only be considered when Product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

1.39 CLOSEOUT PROCEDURES

- A. Submit written certification Contract Documents have been reviewed, Work has been inspected, and Work is complete in accordance with Contract Documents and ready for Architect's inspection.

- B. Submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.
- C. Provide 3 copies of all warranty information, product instructions, and cut sheets.
- D. Include 3 copies of project record drawings.

1.40 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.41 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of Substantial Completion.

1.42 PROTECTING INSTALLED CONSTRUCTION

- A. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.43 WARRANTIES

- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.
- C. Submit prior to final Application for Payment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02221

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolishing designated building components, equipment, and fixtures.
 - 2. Demolishing, disconnection and capping designated utilities.
 - 3. Removing designated items for reuse and Owner's retention.
 - 4. Protecting items designated to remain.
 - 5. Removing demolished materials.

1.2 SUBMITTALS

- A. Shop Drawings and Schedule: Describe demolition, removal procedures, sequence, and schedule.
- B. Design Data: Submit calculations for bracing, shoring, and underpinning to protect structures indicated to remain signed and sealed by professional engineer.

1.3 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of capped utilities.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Document condition of building components indicated to remain.
- B. Monitor buildings for movement during demolition operations. Notify Architect/Engineer of measured movement.

3.2 PREPARATION

- A. Identify existing electrical feeds, conduit, and panels to remain.
- B. Provide, erect, and maintain temporary barriers and security devices.

- C. Notify adjacent owners of work which may affect their property, potential noise, utility outage, or disruption prior to the start of Work. Coordinate with Owner.
- D. Erect and maintain temporary partitions to prevent spread of dust, odors and noise as to not interfere with other work in the building.
- E. Protect existing items indicated to remain.

3.3 DEMOLITION REQUIREMENTS

- A. Conduct demolition to minimize interference with adjacent building areas and building components to remain.
- B. Conduct operations with minimum interference to public or private accesses.
- C. Maintain egress and access at all times. Do not close or obstruct roadways or sidewalks without permits.
- D. Cease operations immediately when adjacent structure appears to be in danger. Notify Architect.

3.4 BUILDING DEMOLITION

- A. Remove and dispose of all existing furniture and equipment unless noted otherwise.
- B. Remove and dispose of all debris.
- C. Disconnect, remove, and cap electrical feeds, conduit, and equipment not utilized.
- D. Disconnect, remove, and cap plumbing supplies, fixtures, and sanitary lines not utilized.
- E. Disconnect, remove, and cap mechanical equipment and radiant heating lines not utilized.
- F. Demolish building components indicated in orderly and careful manner.

3.5 SELECTIVE DEMOLITION

- A. Demolish and remove components in orderly and careful manner, in sequence as indicated on Drawings.
- B. Protect existing supporting structural members and building components to remain.

3.6 CLEAN UP

- A. Remove demolished materials from site as work progresses.
- B. Leave areas of work in clean condition.

3.7 SCHEDULE OF PRODUCTS TO BE REMOVED

- A. Refer to drawings for additional items not delineated in this specification section.
- B. Owner has right of first refusal for equipment and fixtures indicated to be removed.

END OF SECTION

SECTION 05400
METAL STUD FRAMING SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish all materials, labor, and equipment necessary to install all metal stud framing as called for on the Plans or herein specified.

1.1. REGULATORY REQUIREMENTS

- A. Conform to applicable codes and manufacturer's specifications for fire rated assemblies called for on the Drawings.

1.2. QUALITY ASSURANCE

- A. Perform work in strict accordance with manufacturer's specifications

1.3. DELIVERY, STORAGE, HANDLING

- A. Protect metal studs from rusting and damage. Deliver to the project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off the ground in a dry, ventilated space.

1.4. SEQUENCING AND SCHEDULING

- A. Sequence work with other work directly affected by this Section.
- B. Coordinate work under provisions of Section 01001.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Celotex.
- B. Dale Industries.
- C. Dietrich
- D. Flintkote
- E. Kaiser.
- F. National Gypsum.

G. U.S. Gypsum.

H. Substitutions: Under provisions of Section 01600.

2.2 STUD FRAMING MATERIALS

A. Studs: All studs and joists shall be formed from steel that conforms to the requirements of 1986 ANSI standards with 1989 amendments. ASTM A525, galvanized to G60 coating class, or ANSI/ASTM A653, electrogalvanized, nonload bearing rolled steel, channel shaped, punched for utility access.

1. Non load bearing studs shall be as follows:

- a. 3 1/2" X 1 1/4" - 25 gauge studs at 16" O.C. 10'-6" - maximum unbraced length
- b. 3 1/2" X 1 1/4" - 20 gauge studs at 16" O.C. 16'-0" - maximum unbraced length
- c. 6" X 1 1/4" - 22 gauge studs at 16" O.C. - 20'-0" - maximum unbraced length
- d. 6" X 1 1/4" - 20 gauge studs at 16" O.C. - 22'-0" - maximum unbraced length

2. All load bearing studs shall be in sizes and gauges as called for on the drawings.

B. Runners: Of same material and finish as studs, bent leg retainer notched to receive studs.

C. Furring and Bracing Members: Of same material and finish as studs, thickness to suit purpose or as called for on the Drawings.

D. Fasteners: Self-drilling, self-tapping screws, size to suit application.

E. Metal Backing: 20 gage galvanized steel. Coordinate location with plumbing, handrails, millwork and equipment.

F. Anchorage Devices: Power driven or expansion bolts or screws, size and type to suit application.

G. Slip Channels: Provide slip channels at the top of all non-loading bearing walls.

2.3 STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

A. Provide components complying with ASTM C754 for materials and sizes unless otherwise indicated.

B. Tie wire and Hanger Wire: ASTM A641, Class 1 zinc coating, soft temper of a material and size having superior corrosion resistance and equivalent strength to the galvanized steel wire specified.

1. Tie wire shall be 0.0625 inch diameter wire.
2. Hanger wire shall be 0.162 inch diameter wire.

- C. Carrying Channels: Cold rolled, commercial steel sheet with a base thickness of 0.0538 inch, a minimum 1/2" wide flange, with ASTM A653, G40, hot dip galvanized zinc coating.
 - 1. Depth: 1-1/2 inches, 475 pounds per 1000 feet, unless noted otherwise.
- D. Furring Channels: Commercial steel sheet with ASTM A653, G40, hot dip galvanized zinc coating, minimum 3/4 inch deep, 300 pounds per 1000 feet.
 - 1. Hat shaped, rigid furring channels: ASTM C645, 7/8 inch deep.
 - a. Minimum base metal thickness: 0.0179 inch.
 - 2. Steel Studs: ASTM C645
 - a. Minimum base metal thickness: 0.0179 inch.
 - b. Depth: 1-5/8 inch minimum, unless otherwise noted.
- E. (Contractor's Option) Grid Suspension System of Interior Ceilings: ASTM C645, manufacturer's standard direct-hung grid suspension system composed of the main beams and cross furring members that interlock to form a modular supporting network.

2.4 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that conditions are ready to receive work.
- B. Verify field measurements are as shown on Drawings, instructed by the manufacturer.
- C. Verify that rough in utilities are in proper location.
- D. Beginning of installation means installer accepts existing conditions.

3.2 ERECTION

- A. Align and secure top and bottom runners at 24 inches o.c.
- B. Fit runners under and above openings; secure intermediate studs at spacing of wall studs. (Maximum 24" o.c.).
- C. Install studs vertically at 16 inches o.c.
- D. Connect studs to tracks using fastener method and as recommended by the manufacturer.
- E. Use full length studs wherever possible. If necessary, splice studs with 8 inch nested lap, secure each stud flange with flush head screw.

- F. Construct corners using minimum three studs.
- G. Double studs at expansion joints in gypsum board wall openings, door and window jambs, and not more than 2 inches each side of openings.
- H. Brace stud framing system and make rigid or as may be required for gauge of stud.
- I. Coordinate erection of studs with requirements of door and window frame supports and attachments.
- J. Align stud web openings.
- K. Coordinate installation of bucks, anchors, and blocking with electrical and mechanical work to be placed in or behind stud framing.
- L. Refer to Drawings for indication of partitions extending to ceiling only and for partitions extending through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners as required.
- M. Coordinate placement of insulation in multiple stud spaces made inaccessible after stud framing erection.
- N. Where vertical control joints are shown at jamb lines, provide additional vertical studs located on opening side of jambs and not less than 1/2 inch from jamb studs. Do not fasten studs to tracks or jamb studs.
- O. At door frames, provide rough framing as specified above. Provide jamb studs to comply with stud manufacturer's recommendation for the types of frames and weights of doors used in the project. Fasten jamb studs to metal frames with anchor clips using 2 self-tapping screws or bolts per clip. Where wood frames are shown, fasten jamb studs to rough framing with screws. Where solid core wood doors or double doors or doors weighing more than 50 lbs. are shown or scheduled, provide 2, 25-gauge studs at each jamb and one additional stud not more than 6 inches from jamb studs, or provide 20 gauge studs adjacent to each jamb.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes structural floor, wall; subfloor sheathing; preservative treatment; blocking in wall and roof openings; wood furring and grounds; electrical panel back boards, concealed wood blocking.

1.2 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by National Forest Products Association (NFPA) with visible grade stamp.
 - 2. Plywood Grading Agency: Certified by APA/The Engineered Wood Association.
- B. Fire Rated Construction: Rating as indicated on Drawings.
 - 1. Tested Rating: Determined in accordance with ASTM E119.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

- A. Lumber for furring, blocking, framing and all permanent work shall be Spruce-Pine-Fir for sizes up to 4" thick and 6" wide. Moisture content shall not exceed 19%.
- B. Lumber 2" to 4" thick and wider than 6" shall be #2 grade Spruce-Pine-Fir. Moisture content shall not exceed 19%.

2.2 SHEATHING MATERIALS

- A. OSB (Oriented Strand Board) constructed of waterproof glue and grade marked A-C where one side is exposed, A-A where both sides are exposed, and C-C where concealed.
- B. Particleboard Sheathing, 45 lb. density with maximum moisture content of 8%. Meet or exceed requirements for its type and classification under commercial standard CS-236-66 or Federal Specification LLL-B-800A.
- C. Plywood Floor Sheathing: APA Rated Sheathing Sturd-I Floor Span Rating; tongue and groove.
- D. Telephone and Electrical Panel Boards: Plywood.

2.3 ACCESSORIES

- A. Fasteners: Hot dipped galvanized steel meeting ASTM A-153 or stainless steel for exterior, high humidity, and treated wood locations, plain finish elsewhere.
- B. Die Stamped Connectors galvanized steel.
- C. Structural Framing Connectors: Joist Hangers: Galvanized steel, sized to suit framing conditions.
- D. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.
- E. Sill Gasket on Top of Foundation Wall: Plate width, closed cell foam glass fiber strip.
- F. Sill Flashing (Under Sill Gasket): Galvanized steel.
- G. Building Paper: ASTM D226; unperforated asphalt felt.

2.4 WOOD TREATMENT

- A. Wood Preservative (Pressure Treatment): AWPA Treatment UC2 using water borne preservative.
- B. All wood in contact with cementitious materials, roofing and related metal flashings shall be pressure treated.
- C. Moisture Content After Treatment: Kiln dried (KDAT).
 - 1. Lumber: Maximum 19 percent.
 - 2. Structural Panels: Maximum 15 percent.

PART 3 EXECUTION

3.1 FRAMING

- A. Erect wood framing members in accordance with applicable code. Place members level and plumb. Place horizontal members crown side up.
- B. Bridge framing in excess of 8 feet span at mid-span members. Fit solid blocking bridging at ends of members.

3.2 SHEATHING

- A. Secure wall sheathing with ends staggered, over firm bearing.
- B. Place Plywood sheeting at building corners for horizontal distance of 4'-0".

- C. Place building paper over wall sheathing, weather lap joints and end laps, staple in place. Coordinate flashing installation to ensure continuous water resistant barrier.
- D. Use sheathing clips between sheets between roof framing members.
- E. Install telephone and electrical panel back boards with plywood sheathing material where required. Size back board by 12 inches beyond size of electrical panel.

3.3 FIREBLOCKING AND DRAFTSTOPPING

- A. Install fireblocking to cut off concealed draft openings.
 - 1. Concealed Framed Wall and Furred Spaces: Install fireblocking vertically at floor and ceiling levels and horizontally at maximum 10 feet on center.
 - 2. Connections Between Horizontal and Vertical Spaces: Install fireblocking between vertical walls and partitions and the following:
 - a. Horizontal floor and roof framing.
 - b. Soffits, dropped ceilings, cove ceilings and other horizontal concealed spaces.
 - 3. Stairs: Install fireblocking between stair stringers at top and bottom of each run.
 - 4. Exterior Combustible Architectural Trim: Install fireblocking at maximum 20 feet on center.

END OF SECTION

SECTION 06200

CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes the fabrication, installation, and finishing of architectural millwork.
- B. Related Sections
 - 1. 08211 - Wood Doors
 - 2. 12330 - Casework.

1.2 REFERENCES

- A. Minimum standards for work within this section shall be in conformity with the MANUAL OF MILLWORK, latest edition, Standards of the Architectural Millwork Industry as adopted by the WOODWORK INSTITUTE.

1.3 SUBMITTALS

- A. Submit shop drawings in conformance to MANUAL OF MILLWORK - SECTION 1, "Basic Requirements for Architectural Millwork Shop Drawings".
- B. Furnish a WOODWORK INSTITUTE - CERTIFIED COMPLIANCE LABEL on the first page of shop drawings.
- C. Shop drawings:
 - 1. Submit two copies, one of which will be returned with reviewed notations, make corrections noted (if any) and distribute required copies prior to commencement of work.
- D. Finish samples:
 - 1. Submit four samples of each cut and species of wood to be used, minimum size of 6" x 12" for lumber and 12" x 12" for plywood.
 - 2. Submit four additional samples of what will be used to painting trade for preparation of paint samples.

1.4 QUALITY ASSURANCE

- A. Performance shall be in accordance with Premium GRADE of the WOODWORK INSTITUTE - MANUAL OF MILLWORK, latest edition.
 - 1. If provisions for the GRADE specified are in conflict with, or modified by the drawings and/or specifications, the modifications shall govern.

1.5 DELIVERY, STORAGE and HANDLING

- A. Deliver all materials only when the project is ready for installation and the general contractor has provided a clean storage area as defined in the MANUAL OF MILLWORK.

1.6 SEQUENCING and SCHEDULING

- A. Coordinate all fabrication, delivery and installation work with the general contractor and other applicable trades.

PART 2 PRODUCTS

2.1 COMPONENTS

- A. In accordance with the MANUAL OF MILLWORK, Exposed, Finished Components as part of the wood paneling restoration project shall be the same species, cut, and grain as components to be replaced. Moisture content of 6-8% prior to finish.
- B. Fabrication shall comply with First Class Workmanship, as defined in the MANUAL OF MILLWORK.

2.2 INTERIOR MILLWORK

- A. Adhesive used shall be Type I waterproof.
- B. In the event that grain and color of veneers vary widely, the finisher may find it necessary to do substantial toning and color blending to arrive at the desired final color or sheen. It is mandatory that adequate finish samples be submitted.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify the adequacy and proper location of any required backing or support framing.
- B. Verify that mechanical, electrical, plumbing and other building items (supplied by others) effecting work in this section are in place and ready.

3.2 INSTALLATION

- A. Install all work in conformance with MANUAL OF MILLWORK PREMIUM GRADE.
- B. All work shall be secured in place, square, plumb and level.
- C. All work abutting other components shall be properly scribed.

- D. Mechanical fasteners are not allowed at exposed surfaces.
- E. Equipment cut-outs within countertops indicated on plans shall be cut by installer.
- F. Method of attachment, including the type, size, frequency, and/or spacing of anchoring devices and fasteners shall comply to MANUAL OF MILLWORK minimum requirements or be as indicated in the plans or specifications.
- G. All installation including attachment of casework and countertops shall be in compliance with MANUAL OF MILLWORK minimum requirements.
- H. Work abutting other components shall be properly scribed.

3.3 ADJUSTING

- A. Before completion of the installation, the installer shall adjust all moving or operating parts to function smoothly and correctly.

3.4 CLEANING

- A. Upon completion of the installation, the installer shall clean all items installed of pencil or ink marks and broom clean the area of his operations, depositing debris in containers provided by the general contractor.

END OF SECTION

SECTION 06651
SOLID SURFACE FABRICATIONS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following horizontal and trim solid surface product types:

1. Window sills
2. Countertops with integral sinks
3. Backsplashes and Sidesplashes

B. Related Sections include the following:

1. Division 6 Section "Carpentry" for Blocking.
2. Division 22 Section "Plumbing Fixtures."

1.3 DEFINITION

A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

1.4 SUBMITTALS

A. Product data:

1. For each type of product.

B. Shop drawings:

1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - a. Show full-size details, edge details, thermoforming requirements, attachments, etc.
 - b. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
 - c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface.

C. Samples:

1. For each type of product indicated.
 - a. Submit minimum 6-inch by 6-inch sample in specified gloss.
 - b. Cut sample and seam together for representation of inconspicuous seam.

- c. Indicate full range of color and pattern variation.
- 2. Approved samples will be retained as a standard for work.
- D. Fabricator/installer qualifications:
 - 1. Fabricator/ Installer to have a minimum of 5 years' experience.
- E. Manufacturer certificates:
 - 1. Signed by manufacturers certifying that they comply with requirements.
- F. Maintenance data:
 - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
 - a. Maintenance kit for finishes shall be submitted.
 - 2. Include in project closeout documents.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/installer qualifications:
 - 1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.
- C. Applicable standards:
 - 1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - d. NSF International
 - 2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1) Flame Spread Index: 25 or less.
 - 2) Smoke Developed Index: 450 or less.
- D. Coordination drawings:
 - 1. Shall be prepared indicating:
 - a. Plumbing work.
 - b. Electrical work.
 - c. Miscellaneous steel for the general work.
 - d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
 - 2. Content:
 - a. Project-specific information, drawn accurately to scale.

- b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
- c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
- d. Provide alternate sketches to designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.

E. Drawings shall:

- 1. Be produced in 1/2-inch scale for all fabricated items.

F. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.

- 1. No review or approval will be forthcoming.
- 2. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.

G. Pre-installation conference:

- 1. Conduct conference at project site to comply with requirements in Division 1.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.7 WARRANTY

- A. Provide manufacturer's warranty against defects in materials.
 - 1. Warranty shall provide material and labor to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Optional Installed Warranty:
 - 1. To qualify for the optional Installed Warranty, fabrication and installation must be performed by a DuPont Certified Fabrication/Installation source who will provide a brand plate for the application.
 - 2. This warranty covers all fabrication and installation performed by the certified/approved source subject to the specific wording contained in the Installed Warranty Card.
- C. Manufacturer's warranty period:
 - 1. Ten years from date of substantial completion.

1.8 MAINTENANCE

A. Provide maintenance requirements as specified by the manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers:

1. Subject to compliance with requirements, provide products by one of the following:
 - a. Corian® surfaces from the DuPont company (basis of design).
 - b. Or Equal.

2.2 MATERIALS

A. Solid polymer components

1. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.
2. Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.

B. Thickness:

1. 1/2 inch

C. Edge treatment:

1. Straight/ Eased- provide sample to architect prior to fabrication.

D. Backsplash:

1. Applied.

E. Sidesplash:

1. Applied.

F. Performance characteristics:

Property	Typical Result	Test
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	1.5×10^6 psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	1.2×10^6 psi	ASTM D 790
Hardness	>85	Rockwell "M" Scale
	56	ASTM D 785
		Barcol Impressor
		ASTM D 2583

Property	Typical Result	Test
Thermal Expansion	3.02×10^{-5} in./in./°C (1.80×10^{-5} in./in./°F)	ASTM D 696
Gloss (60° Gardner)	5–75 (matte—highly polished)	ANSI Z124
Light Resistance	(Xenon Arc) No effect	NEMA LD 3-2000 Method 3.3
Wear and Cleanability	Passes	ANSI Z124.3 & Z124.6
Stain Resistance: Sheets	Passes	ANSI Z124.3 & Z124.6
Fungus and Bacteria Resistance	Does not support microbial growth	ASTM G21&G22
Boiling Water Resistance	No visible change	NEMA LD 3-2000 Method 3.5
High Temperature Resistance	No change	NEMA LD 3-2000 Method 3.6
Izod Impact (Notched Specimen)	0.28 ft.-lbs./in. of notch	ASTM D 256 (Method A)
Ball Impact Resistance: Sheets	No fracture - 1/2 lb. ball: 1/4" slab - 36" drop 1/2" slab - 144" drop	NEMA LD 3-2000 Method 3.8
Weatherability	$\Delta E^*_{94} < 5$ in 1,000 hrs.	ASTM G 155
Specific Gravity †	1.7	ASTM D 570
Water Absorption	Long-term 0.4% (3/4") 0.6% (1/2") 0.8% (1/4")	
Toxicity	99 (solid colors) 66 (patterned colors)	Pittsburgh Protocol Test ("LC50" Test)
Flammability	All colors (Class I and Class A)	ASTM E 84, NFPA 255 & UL 723
Flame Spread Index	<25	
Smoke Developed Index	<25	

† Approximate weight per square foot: 1/4" (6 mm) 2.2 lbs., 1/2" (12.3 mm) 4.4 lbs.

Shapes meet or exceed the ANSI Z124.3 and ANSI Z124.6 standards for plastic sinks and lavatories.
NEMA results based on the NEMA LD 3-2000

2.3 ACCESSORIES

- A. Joint adhesive:
 - 1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- B. Sealant:
 - 1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.
- C. Conductive tape:

1. Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.
- D. Insulating felt tape:
 1. Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

2.4 FACTORY FABRICATION

- A. Shop assembly
 1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
 2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - a. Reinforce with strip of solid polymer material, 2" wide.
 3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
 4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.
 - c. Repair or reject defective and inaccurate work.
- B. Thermoforming:
 1. Comply with manufacturer's data.
 2. Heat entire component.
 - a. Material shall be uniform, between 275 and 325 degrees Fahrenheit during forming.
 3. Form pieces to shape prior to seaming and joining.
 4. Cut pieces to finished dimensions.
 5. Sand edges and remove nicks and scratches.

2.5 FINISHES

- A. Select from the manufacturer's standard colors A thru C.
- B. Finish:
 1. Provide surfaces with a uniform finish.
 - a. Matte; gloss range of 5–20.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 - 1. Provide product in the largest pieces available.
 - 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - a. Exposed joints/seams shall not be allowed.
 - 3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
 - 4. Cut and finish component edges with clean, sharp returns.
 - 5. Rout radii and contours to template.
 - 6. Anchor securely to base cabinets or other supports.
 - 7. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
 - 8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
 - 9. Install countertops with no more than 1/8-inch (3 mm) sag, bow or other variation from a straight line.
- B. Integral sinks/vanities:
 - 1. Provide solid surface materials bowls and/or lavatories sinks with overflows in locations shown on the drawings.
 - 2. Secure sinks and lavatory bowls to tops using manufacturer's recommended sealant, adhesive and mounting hardware to maintain warranty.

3.3 REPAIR

- A. Repair or replace damaged work which cannot be repaired to architect's satisfaction.

3.4 CLEANING AND PROTECTION

- A. Keep components clean during installation.
- B. Remove adhesives, sealants and other stains.

END OF SECTION

SECTION 07270

FIRESTOPPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fireproof firestopping for all holes, penetrations, and voids in all fire rated walls.

1.2 PERFORMANCE REQUIREMENTS

- A. Firestopping Materials: All holes, penetrations, and voids in fire rated floors shall be sealed with a fire stopping material that is UL Classified and shall have I.C.B.O., B.O.C.A.I., and S.B.C.C.I. (NRB 243) approved ratings to 3-hours per ASTM E-814 (UL 1479). Each penetrated fire wall must be sealed such that it is restored to its original hourly rating.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01001.
- B. Product Data: Provide data on product characteristics, performance and limitation criteria.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire resistance ratings and surface burning characteristics.

1.5 SEQUENCING

- A. Sequence Work to permit firestopping materials to be installed after adjacent and surrounding work is complete.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Firestopping Material: Firestopping material shall be asbestos-free and capable of maintaining an effective barrier against flame, smoke, and gases in compliance with the requirements of ASTM E 814 and UL 1479. (Materials which are no longer acceptable under these standards include fiberglass, mineral wool, and ceramic fiber as they cannot pass the smoke barrier and hose stream tests.)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions.
- B. Verify that openings are ready to receive the Work of this Section.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.
- B. Remove incompatible materials which affect bond.
- C. Install backing materials to arrest liquid material leakage.

3.3 APPLICATION

- A. Apply primer and materials in accordance with manufacturer's instructions.
- B. Apply firestopping material in sufficient thickness to achieve rating to uniform density and texture.
- C. Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items requiring firestopping.

3.4 CLEANING

- A. Clean Work.
- B. Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished Work.
- B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 08151
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Non-rated and fire-rated hollow metal frames.

1.2 SUBMITTALS

- A. Shop Drawings: Indicate elevations, internal reinforcement, closure method, and cutouts for glazing.
- B. Product Data: Submit frame and door configurations, core materials.
- C. Indicate frame configuration, anchor types and spacings, location for cutouts for hardware, reinforcement, and finish.
- D. Manufacturer's Installation Instructions: Submit special installation instructions.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of SDI-100 and SDI-118.
- B. Fire rated door and frame construction to conform to applicable codes and regulations.
- C. Installed frame and door assembly to conform with NFPA 80 for fire-rated class indicated in schedule on drawings.

1.4 SUBMITTALS

- A. Submit shop drawings and product data under provision of Section 01001.

1.5 WARRANTY

- A. Furnish five-year manufacturer's warranty on workmanship and materials.

PART 2 PRODUCTS

2.1 PRE-ASSEMBLED STEEL FRAMES

- A. Manufacturers:
 - 1. Curries
 - 2. Ceco

3. Kawanee
4. Fenestra
5. Substitutions: Permitted

2.2 EXTERIOR FRAMES

- A. Frames shall be as manufactured by Curries Co., Mason City, Iowa. Frames to be fabricated of cold rolled steel of gauge. All frames shall be 14 gauge.
- B. All joints to be die-mitered with integral tabs for reinforcement and interlocking of the jambs to the head. Frames shall be set-up and welded.
- C. Frames shall be thoroughly degreased and cleaned of all imperfections before painting. All frames shall receive a factory baked on coat of rust inhibitive primer.
- D. Frames to be mortised, reinforced and drilled and tapped for all mortise finish hardware. Frames to be reinforced and drilled and mounted hardware with drilling and tapping to be done in the field by the erection contractor. Provide metal plaster guards for all mortised cutouts.

2.3 INTERIOR FRAMES

- A. Frames shall be as manufactured by Curries Co., Mason City, Iowa. Frames to be fabricated of cold rolled steel of gauge. All frames 3'-8" and over shall be 14 gauge. All other frames shall be 16 gauge.
- B. All joints to be die-mitered with integral tabs for reinforcement and interlocking of the jambs to the head. Frames shall be set-up and welded.
- C. Frames shall be thoroughly degreased and cleaned of all imperfections before painting. All frames shall receive a factory baked on coat of rust inhibitive primer.
- D. Frames to be mortised, reinforced and drilled and tapped for all mortise finish hardware. Frames to be reinforced and drilled and mounted hardware with drilling and tapping to be done in the field by the erection contractor. Provide metal plaster guards for all mortised cutouts.

2.4 FABRICATION

- A. Fabricate doors and frames as welded unit type.
- B. Fabricate pre-hung units with hardware reinforcement welded in place.
- C. Configure exterior frames to accept weatherstripping.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify framed openings are correct size and thickness and project conditions are acceptable.

3.2 PREPARATION

- A. Apply two coats of bituminous paint to interior of metal frames to be in contact with cementitious materials.

3.3 INSTALLATION

- A. Install units in accordance with manufacturer's installation instructions and in accordance to SDI-105.
- B. Install doors and frames plumb, level and square.
- C. Coordinate installation of hardware specified.
- D. Adjust door and frame units to ensure smooth and balanced movement.

END OF SECTION

SECTION 08211

WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wood doors, non-rated.
- B. Wood doors, fire-rated.
- C. Transom Panels.

1.2 RELATED SECTIONS

- A. Section 06100 - Carpentry.
- B. Section 08151 – Hollow Metal Door Frames.
- C. Section 08710 - Door Hardware.
- D. Section 09900 - Paints and Coatings.

1.3 REFERENCES

- A. ASTM C 303 - Methods of Testing Preformed Block-Type Thermal Insulation.
- B. ASTM D 1037 - Test Method of Evaluating the Properties of Wood-Base Fiber and Particle Panel Materials.
- C. ASTM E 90 - Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
- D. ASTM E 413 - Classification for Rating Sound Insulation.
- E. ASTM E 2074 - Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
- F. ANSI/WDMA I.S.1A - Quality Standards of the Window and Door Manufacturers Association for Architectural Flush Wood Doors.
- G. ANSI A 151.1 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.
- H. ANSI A 208 - Standard for Particleboard.
- I. UBC Standard 7-2 - Fire Tests of Door Assemblies.

- J. Underwriter's Laboratories (UL).
- K. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Underwriter's Laboratories.
- L. Intertek Testing WHI - Directory of Certification Listings for Fire Doors; current edition.
- M. National Fire Protection Association (NFPA).
- N. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
- O. National Electrical Manufacturers Association (NEMA).

1.4 SUBMITTALS

- A. Submit under provisions of Section 01001.
- B. Manufacturer's data on each product to be used, including:
 - 1. Performance and physical data for specified products.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
 - 5. Maintenance instructions for sealing door edges.
- C. Shop Drawings:
 - 1. Submit schedules and elevations indicating door sizes, construction, swing, label, undercut, and applicable hardware locations
 - 2. Indicate dimensions and detail openings for glass lites, louvers, and grilles.
 - 3. Illustrate special cutouts for hardware.
- D. Samples: For factory finished doors, submit two complete sets of selected veneer samples with the standard finish colors representing manufacturer's full range of available colors and finishes. Samples shall represent the color selected on veneer typical of grain patterns and coloration for the specified specie and cut selected.
- E. Certificates: Manufacturer certification that doors and materials comply with specified performance and physical properties signed by an authorized company representative.
- F. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- G. Closeout: Submit warranty documents specified herein.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Fire doors shall bear labels approved by Underwriters Laboratories, Inc. or Intertek Testing (WHI). Any discrepancies between the Drawings and the

procedures and limitations as set forth by the testing agencies shall be brought to the architect's attention. Fire doors shall bear labels approved by Underwriters Laboratories, Inc. or Intertek Testing (WHI.) Notify Architect immediately of any discrepancies between the drawings and the procedures and limitations as set forth by the testing agencies.

2. Provide each fire rated door with a label permanently attached to either the hinge stile or to the top rail, showing testing agency approval for classification scheduled.
3. Install Fire-Rated Door Assembly: Conform to NFPA 80 and local codes and ordinances for fire-rated class as indicated.

B. Provide doors meeting or exceeding the minimum standards as set forth by the following organizations unless standards are modified or exceeded by this specification.

1. WDMA IS 1A-Window and Door manufacturers Association.
2. National Electrical Manufacturers Association (NEMA).
3. National Fire Protection Association (NFPA).

C. Door Identification and Labeling:

1. Provide each fire rated door with a label permanently attached to either the hinge stile or to the top rail, showing testing agency approval for classification scheduled.
2. The top of each door shall bear a label from the manufacturer indicating the door construction, face veneer species, cut and grade. If the doors are factory finished the label shall also have the finishing information.

D. All doors shall be the product of the same manufacturer to ensure uniformity of quality and appearance throughout the project.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Doors shall be palletized at factory in stacks of no more than 30 doors per pallet. Door edges shall be protected with heavy corner guards. Individually wrap factory finished doors in polybags to protect finish from damage by contact with other doors.

B. Deliver in manufacturer's unopened, undamaged packaging, with manufacturer's labels intact.

C. Inspect and report damage at time of delivery. Further processing or installation of doors constitutes acceptance.

D. Storage and Protection: Store materials in an enclosed location protected from exposure to harmful weather conditions and at temperature and relative humidity conditions recommended by manufacturer and referenced quality standards.

1. Store doors flat on a level surface, supported to prevent warpage, in a clean, dry and well-ventilated area protected from sunlight. Do not subject doors to extreme heat, dryness or moisture.
2. Break seal (plastic protective packaging only) onsite to permit ventilation, if required.
3. Seal door edges immediately upon delivery, prior to storage.

4. Do not drag doors across one another.

1.7 PROJECT CONDITIONS

- A. Temperature and Relative Humidity Requirements: Relative humidity shall be 30 to 50 percent; temperature shall be 60 to 80 degrees F (16 to 28 degrees C). Maintain required temperature and relative humidity in spaces where products will be installed for a minimum of 24 hours before, and during and after installation as recommended by manufacturer.

1.8 WARRANTY

- A. All work in this Section shall be warranted by a FULL DOOR WARRANTY (from the date of installation) against defect in materials and workmanship, including the following:
 1. Delamination in any degree.
 2. Warp or twist of 1/4 inch (6 mm) or more in any 3 foot 6 inch (1.10 m) by 7 foot (2.13 m) section of a door.
 3. Telegraphing of any part of core assembly through face to cause surface variation of 1/100 inch (2.54 mm) or more in a 3 inch (76 mm) span.
 4. Any manufacturing defect which may, in any way, impair or affect performance of the door for the purpose which it is intended. Replacement under this warranty shall include reasonable cost of hanging, installation of hardware, and finishing.
- B. Period of warranty after date of installation:
 1. Interior solid core and mineral core Life of original installation.
 2. Exterior solid core - 1 year.
- C. Submit, for Owners acceptance, manufacturers standard warranty document executed by authorized company official.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. Oshkosh Door Company
 2. Algoma Hardwood, Inc.
 3. Weyerhaeuser
 4. Eggers Hardwood Products
 5. Graham Manufacturing Corporation

- B. Substitutions: Under provisions of 01001.

2.2 FLUSH WOOD DOORS

- A. Door Construction General: Stile and rail dimensions given are minimum sizes allowed after trimming to factory prefitting.

B. Cores:

1. Particleboard Core: Conform to ANSI A 208.1, LD-2 32lb. density core. Stiles shall be hardwood; solid, laminated or veneered structural composite lumber (SCL). No finger joints allowed in outer band. Outer band to be of the same species lumber or veneer as face veneer with the exception of birch doors which will have maple stiles. Rails will be 1-1/8 inch (28.5 mm) minimum mill option hardwood or structural composite lumber (SCL). Stiles and rails shall be securely bonded to the core then abrasively planed as an assembly before veneering.

C. Faces and Crossbands: DOORS SHALL CONSIST OF FIVE PLIES, MANUFACTURED AS AN EDGE-BONDED, SANDED CORE ASSEMBLY AND LAMINATED IN A ONE-STEP HOT PRESS OPERATION. DOORS MANUFACTURED BY THE COLD-PRESSED METHOD ARE NOT ACCEPTABLE.

1. Veneer for transparent or opaque finish; each face of door shall consist of one face veneer and one crossband, securely bonded to the core utilizing Type I water proof adhesive. Face veneers shall have minimum thickness of 1/50 inch (1.27 mm) and the individual pieces of veneer forming the face must be edge glued (spliced) together.
2. Pairs of premium or custom grade doors scheduled for transparent finish, doors shall be pair matched.
3. Transom panels for transparent finish, door and transom shall be matched and produced from a continuous sheet of veneer. Bottom rail of transom panel shall extend full width and be same specie as face except for birch, which may have a maple rail.
4. Face veneers for transparent finish shall be of specie, cut and grade specified and shall be conform to WDMA I.S.1 Series. Face veneers for transparent finish shall be as follows:
 - a. Veneer Grade:
 - 1) A
 - b. Species and Cut:
 - 1) Red Oak- Plain Sliced
 - c. Veneer Match:
 - 1) Book matched.
 - d. Assembly of Veneer on door face:
 - 1) Balance Match.

2.3 LABELED FLUSH WOOD DOORS

A. Fire doors shall conform to the requirements and bear labels approved by Underwriters Laboratories, Inc. or Intertek Testing (WHI.) Provide doors rated as indicated on the Drawings.

1. Mineral core flush veneered doors, 5-ply shall be made up of face veneers, crossbanding and a core unit all securely bonded together utilizing Type I water-proof adhesive.

B. Faces and Crossbands: Doors shall consist of 5 plies, manufactured as an edge-bonded, sanded core assembly and laminated in a one-step hot-press operation. Doors manufactured by the cold-pressed method are not acceptable.

1. Veneer for transparent or opaque finish; each face of door shall consist of one face veneer and one crossband, securely bonded to the core utilizing Type I water proof adhesive. Face veneers shall have minimum thickness of 1/50 inch (1.27 mm) and the individual pieces of veneer forming the face must be edge glued (spliced) together.
2. Pairs of premium or custom grade doors scheduled for transparent finish, doors shall be pair matched.
3. Transom panels for transparent finish, door and transom shall be matched and produced from a continuous sheet of veneer. Bottom rail of transom panel shall extend full width and be same specie as face except for birch, which may have a maple rail.
4. Face veneers for transparent finish shall be of specie, cut and grade specified and shall be conform to WDMA I.S.1 Series standards. Face veneers for transparent finish shall be as follows:
 - a. Veneer Grade:
 - 1) A
 - b. Species and Cut:
 - 1) Red Oak- Plain Sliced
 - c. Veneer Match:
 - 1) Book matched.
 - d. Assembly of Veneer on door face:
 - 1) Balance Match.

C. Core Unit: Manufacturers noncombustible mineral, monolithic, or in sections tightly fitted and glued. The density shall be minimum 28 lbs. per cubic foot (nominal).

D. Rails: Top 15/16 inch (24 mm), bottom 1-7/8 inch (44 mm) rail (one of two piece) of flame resistant material salt free. Securely glue all rails to core.

E. Stiles: Manufacturer's standard for rating listed. Stiles shall be bonded to the core and be salt free. Drill 5/32 inch (4 mm) pilot holes for all hinge screws at the factory prior to shipment for B and C label fire doors. Stiles must meet the following performance criteria:

1. Split Resistance: Average of ten test samples shall be not less than 800 load pounds (363 kg) when tested in accordance with Test Method to Determine Split Resistance of Hinge Edges of Composite Type Fire Doors.
2. Direct Screw Withdrawal: Average of ten test samples shall be not less than 650 load pounds (295 kg) when tested for direct screw withdrawal in accordance with ASTM D-1037; using a No. 12 by 1-1/4 inch (38 mm) steel thread-to-the-head wood screw of the cadmium plated or rust-resistant type.
3. Cycle/Slam: 200,000 cycles with no loose hinge screws or other visible signs of failure when tested in accordance with the requirements of ANSI A 151.1, Section 2.5.

F. Blocking: Provide all 45, 60, and 90 minute fire doors with composite blocking with improved screw-holding capability approved for use in fire doors indicated and as follows:

1. 5 inch (127 mm) top rail and lock block, 5 inch by 10 inch (127 mm by 254 mm) minimum size at lock bore; or two lock blocks; 5 inch by 10 inch (127 mm by 254 mm) minimum size at doors indicated with exit devices.

G. Meeting stiles for rated pairs.

1. Provide metal edges and astragals primed for field painting.

H. Labeled doors shall be manufactured to the required size so as to provide proper clearances without field trimming. This procedure shall be followed so as to assure the full thickness of the edge bands.

I. Doors shall be suitable for hanging on full mortised butt hinges using No. 12 inch by 1-1/4 inch (32 mm) steel threaded-to-the-head wood screws. Coordinate with Sections 08700 and 06200 for proper screws and installation. Half-surface hinges are not acceptable.

2.4 FABRICATION

- A. Coordinate with hardware and metal frame manufacturers to assure that doors are properly prepared to receive hinges and hardware. Provide door manufacturer with two copies of approved frame schedule, two copies of hardware schedule, and all necessary hardware templates.
- B. Fabricate non-rated doors in accordance with ANSI/WDMA (formerly NWWDA) IS-1-A requirements including manufacturer's enhanced amendments.
- C. Fabricate fire-rated doors in accordance with manufacturer's label, including manufacturer's enhanced amendments and to UL or Warnock-Hersey requirements. Attach fire rating label to door.

2.5 FACTORY FINISHING

- A. Transparent Finish: Finish shall be in accordance with WDMA TR-6 or equivalent catalyzed polyurethane finish (satin sheen) for open grain finish per Section G-17. Stain, if required, to be selected from manufacturer's standard colors or custom matched to Architects sample. Top and bottom of the doors to be sealed. Doors to be individually enclosed in a polybag.
 1. Doors to have a stained finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install wood doors in accordance with manufacturer's instructions.
- B. Install hardware according to approved hardware schedule for proper locations.
 - 1. Install with full-threaded wood screws furnished by hardware manufacturer.
 - 2. Drill proper size pilot hole for all screws. Full mortise hinges require 5/32 inch (4 mm) pilot holes.
 - 3. Securely anchor hardware in correct position and alignment.
 - 4. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.
- C. Install fire rated doors in accordance with the requirements of the labeling agency and NFPA 80 and NFPA 101.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 SCHEDULES

- A. Schedules: Refer to Door Schedule indicated on the drawings.

END OF SECTION

SECTION 08305
ACCESS DOORS AND PANELS

1.1 DESCRIPTION:

- A. Section specifies access doors or panels.

1.2 RELATED WORK:

- A. Section 04810 – Unit Masonry Assemblies.
- B. Section 09260 – Gypsum Board Assemblies.

1.3 SUBMITTALS:

- A. Submit in accordance with Division 1.
- B. Shop Drawings: Access doors, each type, showing construction, location and installation details.
- C. Manufacturer's Literature and Data: Access doors, each type.

1.4 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - 1. A167-99(R-2009) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip
 - 2. A1008-10 Steel Sheet, Cold-Rolled, Carbon, Structural, High Strength Low-Alloy
- C. American Welding Society (AWS):
 - 1. D1.3-08 Structural Welding Code Sheet Steel
- D. National Fire Protection Association (NFPA):
 - 1. 80-10 Fire Doors and Windows
- E. The National Association of Architectural Metal Manufacturers (NAAMM):
 - 1. AMP 500 Series Metal Finishes Manual
- F. Underwriters Laboratories, Inc. (UL):
 - 1. Fire Resistance Directory

PART 2 PRODUCTS

2.1 FABRICATION, GENERAL

- A. Fabricate components to be straight, square, flat and in same plane where required.
 - 1. Slightly round exposed edges and without burrs, snags and sharp edges.
 - 2. Exposed welds continuous and ground smooth.
 - 3. Weld in accordance with AWS D1.3.
- B. Number of locks and non-continuous hinges as required to maintain alignment of panel with frame.
- C. Provide anchors or make provisions in frame for anchoring to adjacent construction. Provide size, number and location of anchors on four sides to secure access door in opening.

2.2 ACCESS DOORS, FLUSH PANEL:

- A. Door Panel:
 - 1. Form of 1.5 mm (0.0598 inch) thick stainless steel sheet.
 - 2. Reinforce to maintain flat surface.
- B. Frame:
 - 1. Form of 1.5 mm (0.0598 inch) thick stainless steel sheet of depth and configuration to suit material and type of construction where installed.
 - 2. Provide surface mounted units having frame flange at perimeter where installed in concrete, masonry, or gypsum board construction.
 - 3. Weld exposed joints in flange and grind smooth.
- C. Hinge:
 - 1. Concealed spring hinge to allow panel to open 175 degrees.
 - 2. Provide removable hinge pin to allow removal of panel from frame.
- D. Lock:
 - 1. Flush, screwdriver operated cam lock.

2.3 FINISH:

- A. Provide in accordance with NAAMM AMP 500 series on exposed surfaces.
- B. Steel Surfaces: Baked-on prime coat over a protective phosphate coating.
- C. Stainless Steel: No. 4 for exposed surfaces.

2.4 SIZE:

- A. Minimum 24 inches square door unless otherwise shown.

PART 3 EXECUTION

3.1 LOCATION:

- A. Provide access panels or doors wherever any valves, traps, dampers, cleanouts, and other control items of mechanical, electrical and conveyor work are concealed in wall or partition, or are above ceiling of gypsum board or plaster.

3.2 INSTALLATION, GENERAL:

- A. Install access doors in openings to have sides vertical in wall installations, and parallel to ceiling suspension grid or side walls when installed in ceiling.
- B. Set frames so that edge of frames without flanges will finish flush with surrounding finish surfaces.
- C. Set frames with flanges to overlap opening and so that face will be uniformly spaced from the finish surface.
- D. Set recessed panel access doors recessed so that face of surrounding materials will finish on the same plane, when finish in door is installed.

3.3 ANCHORAGE:

- A. Secure frames to adjacent construction using anchors attached to frames or by use of bolts or screws through the frame members.
- B. Type, size and number of anchoring device suitable for the material surrounding the opening, maintain alignment, and resist displacement during normal use of access door.
- C. Anchors for fire rated access doors shall meet requirements of applicable fire test.

3.4 ADJUSTMENT:

- A. Adjust hardware so that door panel will open freely.
- B. Adjust door when closed so door panel is centered in the frame.

END OF SECTION

SECTION 08710

DOOR HARDWARE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Wood Doors".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. UL/ULC and CSA C22.2 – Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
 - 8. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams.

Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum of 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

- B. Installer Qualifications: A minimum of 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum of 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.

5. Review the required inspecting, testing, commissioning, and demonstration procedures.
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 1. Structural failures including excessive deflection, cracking, or breakage.
 2. Faulty operation of the hardware.
 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty-five years for manual surface door closer bodies.
4. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets are indicated on the drawings. Products are identified by using door hardware designations, as follows:

C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

- C. Cylinders: Original manufacturer cylinders complying with the following:
 - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 - 5. Keyway: Manufacturer's Standard.
- D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1, certified cylinders employing a utility patented and restricted keyway requiring the use of patented controlled keys. Provide bump resistant, fixed core cylinders as standard with solid recessed cylinder collars. Cylinders are to be factory keyed where permanent keying records will be established and maintained.
 - 1. Provide a 6 pin multi-level master key system comprised of patented controlled keys and security and high security cylinders operated by one (1) key of the highest level. Geographical exclusivity to be provided for all security and high security cylinders and UL437 certification where specified.
 - a. Level 1 Cylinders: Provide utility patented controlled keyway cylinders that are furnished with patented keys available only from authorized distribution.
 - b. Level 2 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping and picking.
 - c. Level 3 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders to be UL437 certified and constructed to provide protection against bumping, picking, and drilling.
 - d. Refer to hardware sets for specified levels.
 - 2. Acceptable Manufacturers:
 - a. Sargent Manufacturing (SA) - Degree Series.
 - b. Corbin Russwin (RU) – Access 3 Series.
- E. Keying System: Each type of lock and cylinders to be factory keyed.
 - 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 - 3. New System: Key locks to a new key system as directed by the Owner.
- F. Key Quantity: Provide the following minimum number of keys:
 - 1. Change Keys per Cylinder: Two (2)
 - 2. Master Keys (per Master Key Level/Group): Five (5).
 - 3. Construction Keys (where required): Ten (10).
- G. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

H. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into "Key Wizard" software.

2.3 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
 4. Dustproof Strikes: BHMA A156.16.

2.4 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates, and through-bolt and security type fasteners as required for proper installation.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one-piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

2.5 ARCHITECTURAL TRIM

- A. Door Protective Trim
 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
 3. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
 4. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

2.6 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
 1. Acceptable Manufacturers:
 - a. Rixson Door Controls (RF).
 - b. Rockwood Manufacturing (RO).
 - c. Sargent Manufacturing (SA).

2.7 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Acceptable Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Manufacturing (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.8 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.9 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify Architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 3. Unless noted otherwise ALL doors to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- B. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- D. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. Refer to drawings for Hardware Schedule.

END OF SECTION

SECTION 08800

GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Glass and glazing for hollow metal work, windows, glazed walls, doors.

1.2 QUALITY ASSURANCE

- A. Perform Work in accordance with FGMA Glazing Manual.

1.3 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Drawings.

1.4 COORDINATION

- A. Coordinate Work under provisions of Division 1.
- B. Coordinate the Work with glazing frames, wall openings, and perimeter air and vapor seal to adjacent Work.

1.5 WARRANTY

- A. Provide 2-year warranty. After acceptance of the building by the Owner against leakage and defective materials, Glazing Contractor shall repair or replace materials at no cost to Owner.
- B. Warranty: Insulating glass shall carry the manufacturer's standard 10-year warranty against obstruction of vision between the interior glass surfaces caused by failure of the Hermetic seal, due to faulty manufacture. Glazing Contractor shall replace at no cost to the Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Libby - Owens - Ford Company.
- B. PPG Industries, Inc.

- C. ASG Industries, Inc.
- D. Substitutions: Under provisions of Section 01001.

2.2 MATERIALS

- A. Clear Glass: Type I (transparent glass, flat), Class 1 (clear), Quality Q3 (glazing select).
- B. Tinted Glass: Glare reducing float type with gray tint as called for on the Drawings.
- C. Tempered Glass: Tuf-Flex tempered plate glass as manufactured by L-O-F or equal as called for on the Drawings and as required by all applicable codes.
- D. Insulated Glass Units: 1" overall thickness - solar gray tinted, tempered outboard, air space, clear tempered, laminated inboard with low E coating (hard coat) on #3 surface. Two 1/4 inch glass sheets with 1/2 inch thick Hermetically sealed dehydrated air space as called for on the Drawings.

2.3 GLAZING COMPOUNDS

- A. Tremco pre-shimmed "440" tape and Tremco "Mono" sealant or an approved equal, or as recommended by window or door manufacturer.

2.4 GLAZING ACCESSORIES

- A. Glazing beads for aluminum entrance doors and frames shall be extruded vinyl type.
- B. All wood stops shall be supplied by the Millwork Contractor. All metal stops will be furnished by the Door and Door Frame Manufacturer.
- C. Furnish and install all spacers and blocks as may be required all in accordance with the best accepted practices.
- D. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.

- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant as required by sealant manufacturer.

3.3 INSTALLATION

- A. Cut glazing to length; install on glazing pane. Seal corners by butting and sealing junctions with sealant.
- B. Place setting blocks as required with edge block no more than 6 inches from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- D. Install removable stops without displacing glazing. Exert pressure for full continuous contact.
- E. All glazing shall be in accordance with the Specifications for the installation of flat glass in the current issue of the "Glazing Manual" published by the Flat Glass Jobbers Association.
- F. All glass that is set with wood or metal stops shall be set without a putty bed, but shall be back and face puttied to prevent rattling.
- G. All glazing shall be done in an acceptable manner insuring weather tightness of all work.
- H. Install glass in railing system as per railing manufacturer's recommendations.

3.4 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after work is complete.
- C. Clean glass.

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished Work.

END OF SECTION

SECTION 09260
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes gypsum board with joint treatment.

1.2 RELATED SECTIONS

- A. 05400 Metal Stud Framing System
- B. 07270 Firestopping

1.3 QUALITY ASSURANCE

- A. Acoustic Attenuation for Identified Interior Partitions: STC in accordance with ASTM E90.
- B. Perform Work in accordance with ASTM C840. GA-201 - Gypsum Board for Walls and Ceilings. GA-214 - Recommended Specification: Levels of Gypsum Board Finish. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board. GA-600 - Fire Resistance Design Manual.
- C. Furnish framing materials in accordance with SSMA - Product Technical Information.
- D. Fire Rated Wall, Floor, or Roof Construction: Rating as indicated on Drawings hour rating in conjunction with Section 05400 06100.
 - 1. Tested Rating: Determined in accordance with ASTM E119.
 - 2. Fire Rated Partitions: Listed assembly by UL
 - 3. Fire Rated Ceilings and Soffits: Listed assembly by UL.
 - 4. Fire Rated Structural Column Framing: Listed assembly by UL.
 - 5. Fire Rated Structural Beam Framing: Listed assembly by UL
 - 6. Fire Rated Shaft Wall Requirements: hour in accordance with UL

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

- A. Manufacturers:
 - 1. Celotex Building Products
 - 2. National Gypsum Co.
 - 3. United States Gypsum Co.

2.2 COMPONENTS

- A. Gypsum Board Types: 5/8 inch thick, maximum available length in place; ends square cut, tapered edges; unless noted otherwise as follows:
 - 1. Standard Type: ASTM C36.
 - 2. Fire Rated Type: ASTM C36 fire resistive moisture resistant, UL or WH rated.
 - 3. Moisture Resistant Type: ASTM C630/C630M.
 - 4. Impact Resistant Type: ASTM E695, ASTM C1372
 - 5. Exterior Gypsum Soffit Board: ASTM C931/C931M.
 - 6. Foil Faced Gypsum Board: ASTM C36.
 - 7. Gypsum Sheathing Board: ASTM C79C79M; moisture resistant and fire resistant.
 - 8. Gypsum Core Board: ASTM C442, square V-grooved tongue and grooved edges.
 - 9. Cementitious Backing Board: High density, glass fiber reinforced.

2.3 ACCESSORIES

- A. Acoustic Insulation: ASTM C665, preformed glass fiber, friction fit type, unfaced, 3 1/2" inches thick (as indicated on drawings).
- B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board (as indicated on drawings).
- C. Corner Beads: Metal. Metal and paper combination.
- D. Edge Trim: GA-216, Type LC L LK U shape exposed reveal bead.
- E. Joint Materials: ASTM C475 GA-201 and GA-216, reinforcing tape, joint compound, adhesive, and water.
- F. Fasteners: ASTM C1002 Type W nails. Type S12 hardened screws. and GA-216.
- G. Adhesive: ASTM C557. GA-216.
- H. Textured Finish Materials: Latex based texturing material, containing silver or gold color metallic glitter, containing fine aggregate.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions are ready to receive work.

3.2 INSTALLATION

- A. Gypsum Board:
 - 1. All gypsum board to be "Standard" type unless noted otherwise on Room Finish Schedule.

2. Install gypsum board in accordance with GA-216 and GA-600.
3. Fasten gypsum board to furring or framing with nails or screws. Staples may only be used when securing first layer of double layer applications.
4. Place control joints consistent with lines of building spaces as indicated on Drawings as directed by Architect/Engineer.
 - a. Control joints in walls shall be a minimum of 30' apart and extend from floor to ceiling.
5. Place corner beads at external corners as indicated on Drawings. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
6. Seal cut edges and holes in moisture resistant gypsum board and exterior gypsum soffit board with sealant.

B. Gypsum Board Ceilings

1. Install gypsum board in accordance with GA-216 and GA-600.
2. Fasten gypsum board to suspended steel framing with screws.
3. Place control joints consistent with lines of building spaces as indicated on Drawings or as directed by Architect/Engineer or as indicated below:
 - a. Control joints in ceiling shall 50' apart in either direction.
 - b. Control joints in ceilings shall be located any place framing changes direction.

C. Joint Treatment:

1. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
2. Feather coats onto adjoining surfaces so camber is maximum 1/32 inch.

D. Tolerances: Maximum Variation from Flat Surface: 1/8 inch in 10 feet in any direction.

E. Finishing Gypsum Board Assemblies per GA-214 and ASTM C840:

1. Level 0: Temporary construction only.
2. Level 1: In plenum areas above ceilings and areas where assembly is concealed.
3. Level 2: As substrate for tile.
4. Level 3: Areas to receive heavy textured, thick (1/8" or more) wall coverings.
5. Level 4: Used on walls and ceilings to receive flat or eggshell finishes.
6. Level 5: Used on walls and ceilings to receive satin or gloss finishes.

END OF SECTION

SECTION 09300

CERAMIC TILE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1 General Requirements, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. The Work required under this Section consists of tile work, accessories, and related items necessary to complete the Work indicated.
 - 1. Ceramic mosaic tile.
 - 2. Porcelain paver tile.
 - 3. Work includes reinstallation of salvaged existing tile where indicated.
- B. Related Work Specified Elsewhere
 - 1. Section 03050 – Concrete Materials & Methods
 - 2. Section 07900 – Joint Sealers
 - 3. Section 09260 – Gypsum Board Assemblies
- C. Refer to Section 01230 for Alternates that may affect the Work of this Section.

1.3 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C1028:
 - 1. Level Surfaces: Minimum 0.6.
 - 2. Step Treads: Minimum 0.6.
 - 3. Ramp Surfaces: Minimum 0.8.
- B. References: TCA Handbook for Ceramic Tile Installation by Tile Council of America, latest edition.

1.4 SUBMITTALS

- A. Product Data: For each type of product specified. Submit manufacturer's technical information and installation instructions for materials required.
- B. Shop Drawings: Indicate tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type

and composition of tile indicated. Include samples of grout and accessories involving color selection.

D. Samples for Verification: Of each item listed below, prepared on Sample of size and construction indicated. Where products involve normal color and texture variations, include sample sets showing full range of variations expected.

1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on braced cementitious backer units, and with grouted joints using product complying with specified requirements and approved for completed work in color or colors selected by Architect.

E. Maintenance Data: Include cleaning methods, cleaning solutions recommended, stain removal methods and polishes and waxes recommended.

1.5 QUALITY ASSURANCE

A. Work done under this Section of the Specifications shall be performed by mechanics skilled and experienced in class of work involved. Workmanship shall be in accordance with best trade practices, and surface shall be true to line and free from waves and other imperfections. Joints between tiles shall be maintained uniform and even and properly grouted.

1. Installers shall be experienced in ANSI A108 standards and Tile Council of America (TCA) recommendations.

B. Mockups: Before installing tile, construct mockups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects and qualities of materials and execution, Build mockups to comply with following requirements, using materials indicated for completed Work.

1. Locate mockups in location and of size indicated, or, if not indicated, as directed by Architect.
2. Demonstrate proposed range of aesthetic effects and workmanship.
3. Obtain Architect's approval of mockups before proceeding with final unit of Work.
4. Maintain mockups during construction in an undisturbed condition as a standard for judging completed Work.
 - a. Approved mockups in an undisturbed condition at time of Substantial Completion may become part of completed Work.

C. Preinstallation Conference: Before beginning tile installation conduct a conference at Project site to review joint locations, transitions, installation methods, and pattern layouts.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements of ANSI A137.1 for labeling sealed tile packages.

- B. Prevent damage or contamination to materials by water, freezing, foreign, matter, and other causes.
- C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Maintain temperatures at 50 degrees F. or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

1.8 EXTRA STOCK

- A. Upon completion of work, Contractor under this Section shall deliver extra tile and trim, consisting of not less than 2 percent of total quantity of each type, size, pattern, and color installed to Owner for use in future repair and maintenance work. Furnish tile in original boxes, properly marked.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Products of following tile manufacturers will be acceptable, providing their products equal or exceed quality of specified products and colors match colors specified as verified by Architect.
 - 1. Ceramic Mosaic Tile
 - a. American Olean Tile Co.
 - b. Daltile
 - c. Substitutions permitted
 - 2. Ceramic Wall Tile and Base
 - a. American Olean Tile
 - b. Dale Tile Co.
 - c. Graniti Fiandre
 - d. Substitutions permitted
- B. Products of other manufacturers will be considered for acceptance provided they equal or exceed material requirements and functional qualities of specified product.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with standard grade requirements, unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics.
- D. Mounting: For factory-mounted tile, provide back or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies, unless manufacturer specifies that this type of mounting is suitable for these kinds of uses and has been successfully used on other projects.
- E. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.3 UNGLAZED CERAMIC MOSAIC FLOOR TILE (CT)

- A. 1" x 1" Mosaic Tile – American Olean or equal — Price Group 1, 2.
- B. Ceramic Mosaic Trim
 1. Furnish size, color, and shade to match ceramic mosaic field tile, unless otherwise noted.
 2. Provide bullnose trim at base and wainscot caps, curbs, and outside corners.
 3. Provide coves at bases, including corners.

2.4 CERAMIC WALL TILE AND BASE (WET)

- A. Daltile 4 1/4 "x4 1/4" Ceramic Glazed Wall Tile – Price Group 1, 2.
 1. Provide bullnose trim at base and wainscot caps, curbs, and outside corners.

2.5 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, composed as follows:
 1. Mixture of Dry-Mortar Mix and Latex Additive: Mixture of prepackaged dry-mortar mix and liquid-latex additive complying with the following requirements.
 - a. Latex Additive: Acrylic resin.
 - b. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.
- B. Chemical-Resistant, Water-Cleanable, Ceramic Tile-Setting and Grouting Epoxy: ANSI A118.3, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Provide product capable of resisting continuous and intermittent exposure to temperatures of up to 140 degrees F. and 212 degrees F., respectively, as certified by mortar manufacturer for intended use.

2.6 GROUTING MATERIALS

- A. 100% Epoxy Grout: Commercial Type in the following locations:
 1. All toilet room floors.
- B. Polymer Modified Tile Grout: ANSI A118.7
 1. In locations not indicated for Epoxy Grout.
 - a. Unsanded grout mixture for joints 1/8" and narrower.
 - b. Sanded grout mixture for joints 1/8 inch and wider.

2.7 MISCELLANEOUS MATERIAL

- A. Trowelable Underlays and Patching Compounds: Latex modified, Portland cement based formulation provided or approved by manufacturer of tile setting materials for installations indicated.
- B. Transitions, reducers, and movement joints shall be profile and design indicated on Drawings and as manufactured by Shuluter Systems, LP., Plattsburgh, New York, 800-477-9783 specified as type, size, profile, and quality of products required as follows:
- C. Grout Sealer: Manufacturer's standard [silicone] product for sealing grout joints that does not change color or appearance of grout.
- D. Sealants: Provide manufacturer's standard chemically curing elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements of Section 07900 — Joint Sealants.
- E. Temporary Protective Coating: Provide either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; is compatible with tile, mortar, and grout products; and is easily removable after grouting is completed without damaging grout or tile.
 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 degrees F. per ASTM D87.
 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as a temporary protective coating for tile.
- F. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturer's written instructions.

- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to installing tile, inspect new surfaces that are to receive tile covering. Notify Architect in writing of defects or conditions that will interfere with or prevent a satisfactory tile installation. Do not proceed with installation until such defects or conditions have been corrected.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for installations indicated.
 - a. Verify areas are pitched to drains where indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust latter in consultation with Architect.
- B. Starting of installation work in a room or space shall imply acceptance of surfaces to receive tile in that space.
 - 1. Air Temperature and Surfaces in Rooms to Receive Flooring: Between 60 degrees to 90 degrees F, unless otherwise recommended by manufacturer of materials being installed.

3.2 PREPARATION

- A. Provide concrete substrates for tile floors installed with adhesives or thin set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile setting material manufacturer's written instructions. Use product specifically recommended by tile setting material manufacturer.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- B. Clear debris, scrape cementitious deposits from surface that could prevent bond, including curing compounds, paint, oils, waxes, and sealers. Broom clean or vacuum surfaces to be covered immediately before installation. Acid-based cleaners are not permitted.
 - 1. Scarify concrete substrates with blast track equipment, if necessary to completely remove curing compounds or other substances that could interfere with proper

bond of setting materials. Clean and maintain substrate in condition required by setting material manufacturer.

- C. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces:
 - 1. Petroleum paraffin wax or grout release.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in “Specifications for Installation of Ceramic Tile” that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA’s “Handbook for Ceramic Tile Installation.” Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns, Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
 - 1. Form internal angles square and external angles bullnosed, unless otherwise noted.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions.

3.4 LAYOUT

- A. Locate expansion joints and other sealant filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete surfaces.
 - 2. Prepare joints and apply sealants.
 - 3. Control joints and other sealant usage
 - a. Install control joints where tile abuts retaining surfaces such as perimeter walls, curbs, columns wall corners, and directly over cold joints and control joints in structural surfaces conforming to architectural details.
 - b. Install control joint in floors at spacings as indicated in TCA Installation Handbook, unless noted otherwise.

- c. Rake or cut control joints through setting bed to supporting slab or structure. Keep joints free of mortar.
- d. Install in accordance with TCA Installation Handbook.
- e. Fill joints with self-leveling polyurethane sealant and backing material.
- f. Fill joints around toilet fixtures with white silicone sanitary sealant.

4. Expansion Joints

- a. Keep expansion joints free of mortar and grout.
- b. Use manufacturer's expansion joint flashing when covering expansion joints with waterproof or crack isolation membranes.
- c. Provide expansion joints directly over changes in material, over control and expansion joints in substrate, at juncture of floors and walls, at other restraining surfaces such as curbs, columns, bases, and wall corners, and where recommended by TCA EJ171 Expansion Joint requirements.
- d. Install sealant in expansion joints.
- e. Provide sealant material at items penetrating tile work, unless otherwise indicated.
- f. Provide sealants and related materials in accordance with cited ANSI and TCA requirements.

B. Lay out tilework so as to minimize cuts less than one-half tile in size. Do not interrupt pattern through openings, unless otherwise noted. No staggered joints will be permitted.

C. Locate cuts in both walls and floors so as to be least conspicuous.

D. Lay out tile wainscots to next full tile beyond dimensions shown.

E. Align wall joints to give straight, uniform grout lines, plumb and level.

F. Align floor joints to give straight uniform grout lines parallel with walls. Align joints between floor and base tile. Align joints in both directions. Create transitions to other material or colors under door, unless otherwise noted.

G. Make joints between tile sheets same width as joints within sheets so extent of each sheet is not apparent in finished work.

H. Porcelain tile can have large variances in sizing. Do not mix sizes and types of tiles in pattern areas. Joints that do not line up or joint widths that vary will be unacceptable.

3.5 WORKMANSHIP

- A. Supply first-class workmanship in tilework. Work tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joint watertight, without voids, cracks, excess mortar or grout.
- B. Use products in strict accordance with recommendations and directions of manufacturer.
- C. Proportion mixes in accordance with latest ANSI standard specifications.
- D. Smooth exposed cut edges.

- E. Be sure cut edges are clean before installing tiles.
- F. Fit tile carefully against trim and accessories, also around pipes, electrical boxes, and other built-in fixtures so that escutcheons, plates, and collars will completely overlap cut edges.
- G. When using glazed tile sheets, minimize tearing sheets apart by drilling pipe holes as much as possible.
- H. Be sure tilework is free of grout film upon completion.

3.6 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Ceramic Tile Floor Installation Schedule, including those referencing TCA installation methods and ANSI A108 series of tile installation standards.
- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch.
 - 2. Paver Tile: 3/16 inch.
- C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.
 - 1. Provide transition under doors, unless otherwise noted.
- D. Grout Sealer: Apply grout sealer to cementitious grout joints according to grout sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer that has gotten on tile by wiping with soft cloth.

3.7 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Ceramic Tile Wall Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch.
 - 2. Wall Tile: 1/16 inch.

3.8 GROUTING

- A. Grouting shall be installed in accordance with ANSI A108.10 and the manufacturer's recommended procedures and precautions during application and cleaning, unless noted otherwise.
 - 1. Allow tiles to set a minimum of 48 hours before grouting.
 - 2. If bonding materials are rapid setting, follow manufacturer's recommendations.
 - 3. Install in accordance with grout manufacturer's recommendations and ANSI A108.10.
 - 4. Pack joints full and free before mortar takes initial set.

5. Clean excess grout from surface with wet cheese cloth as work progresses. Do not use hydrosponges.
6. Cure after grouting by covering with kraft or construction paper for 72 hours.
7. Install sealant in vertical wall joints at interior corners.

B. Where noted, for chemical-resistant epoxy grouts, comply with ANSI A108.6.

C. Rinse tilework thoroughly with clean water before and after using chemical cleaners.

3.9 ADJUSTING

A. Sound tile after setting. Replace hollow sounding units.

3.10 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-portland cement grout residue from tile as soon as possible.
2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure tile is without damage or deterioration at the time of Final Inspection and Acceptance.

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.11 CERAMIC TILE FLOOR INSTALLATION SCHEDULE

A. Ceramic Mosaic Tile (CT)

1. Ceramic Mosaic Tile Floor Installation: Where ceramic mosaic tile floor is installed on slabs on grade at shower rooms, comply with the following:

- a. Installation Method: TCA F121 (cement mortar bed bonded to waterproof membrane over concrete subfloor).
- b. Setting Bed and Grout: ANSI A108.1A with the following grout:
 - 1) Latex-portland cement grout.
- c. Waterproof Membrane: ANSI A118.10

3.12 CERAMIC TILE WALL INSTALLATION SCHEDULE

A. Ceramic Mosaic Tile Wall (WCT)

- 1. Ceramic Mosaic Tile Wall Installation: Where ceramic tile is installed using a thick-set wall application over masonry or concrete. Note: Where a masonry wall has tile on both sides the nonflushed side is to be thick-set and the flushed side may be thin-set, comply with the following:
 - a. Installation Method: TCA W211 (cement mortar bed bonded to clean, sound, dimensionally stable masonry or concrete).
 - b. Setting Bed and Grout: ANSI A108.1A with the following grout:
 - 1) Latex-portland cement grout.
- 2. Ceramic Mosaic Tile Wall Installation (WCT): Where ceramic mosaic tile is installed over clean, flush, sound, dimensionally stable masonry or concrete, comply with the following:
 - a. Installation Method: TCA W202 (thin-set mortar bed over sound, dimensionally stable masonry or concrete).
 - b. Setting Bed and Grout: ANSI A108.10 with the following mortar and grout:
 - 1) Latex-portland cement mortar
 - 2) Latex-portland cement grout
 - c. Tile: ANSI A108.1A.
- 3. Ceramic Mosaic Tile Wall Installation (WCT): Where ceramic mosaic tile is installed over a cementitious backer unit on metal studs, comply with the following:
 - a. Installation Method: TCA W244 (thin-set mortar bonded to cementitious backer units on metal studs).
 - b. Setting Bed and Grout: ANSI A108.10 with the following mortar and grout:
 - 1) Latex-portland cement mortar
 - 2) Latex-portland cement grout.
 - c. Tile: ANSI A108.5.

END OF SECTION

SECTION 09510
SUSPENDED ACOUSTIC CEILINGS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:

1. Acoustical ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

B. Related Sections:

1. Section 09260 – Gypsum Board Assemblies
2. Divisions 23 - HVAC
3. Division 26 - Electrical Work

C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than SEVEN (7) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
10. ASTM E 1264 Classification for Acoustical Ceiling Products.
11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with or supported by the ceilings.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.7 PROJECT CONDITIONS

- A. Space Enclosure:
 - 1. Building areas to receive ceilings shall be free of construction dust and debris.

1.8 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Acoustical Panels: Sagging and warping
 - 2. Grid System: Rusting and manufacturer's defects
- B. Warranty Period:
 - 1. Acoustical panels: Ten (10) years from date of substantial completion.
 - 2. Grid: Ten (10) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Ceiling Panels:
 1. Armstrong World Industries, Inc.
 2. United States Gypsum.
 3. Celotex.
- B. Suspension System:
 1. Armstrong World Industries, Inc.
 2. Chicago Metallic.
 3. United States Gypsum.
 4. Celotex.

2.2 ACOUSTICAL CEILING UNITS

- A. Refer to drawing notes for reflected ceiling plan.

2.3 SUSPENSION SYSTEMS

- A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel with baked polyester paint. Main beams and cross tees shall have rotary stitching.
 1. Structural Classification: ASTM C 635 Intermediate Duty.
 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 3. Acceptable Product:
 - a. Prelude ML 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
 4. Provide fire-rating to match ceiling tiles as indicated on the drawings.
- B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three times design load, but not less than 12 gauge.
- D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.
- E. Accessories: Stabilizer bars, clips, splices and edge moldings required for suspended grid system.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

- A. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- B. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.
- C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

- E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.
- F. Install fire rated system in accordance with UL Design requirements for one hour rating.
- G. Install after major work above the ceiling is complete. Coordinate location of hangers with other work.
- H. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.
- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- C. Remove and dispose of all debris from work area.

END OF SECTION

SECTION 09650

RESILIENT FLOORING

PART 1 GENERAL

1.1 SUMMARY

- A. Product Specification
- B. Specification for Adhesive
- C. Floor Layouts
- D. Samples
- E. Schedule
- F. Qualifications for Installer

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
- B. Samples:
 - 1. Submit manufacturer's complete set of color samples for initial selection.
 - 2. Submit two samples illustrating color and pattern for each resilient flooring product specified.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit maintenance instruction and data.
- B. Warranty

1.4 ENVIRONMENTAL REQUIREMENTS

- A. The permanent HVAC system must be on for 7 days prior to, during and after installation between 65 and 85 degrees Fahrenheit or 18 to 29 degrees Celsius.
- B. Material and adhesive must be acclimated to the installation area for a minimum of 48 hours prior to installation.

PART 2 PRODUCTS

2.1 VINYL PLANK FLOORING (VPF)

- A. Contractor shall include the following material allowance for Vinyl Plan Flooring (VPF).
 - 1. VPF- (Vinyl Plan Flooring) - \$6 per square foot.

2.2 VINYL COMPOSITION TILE (VCT)

- A. Vinyl Composition Tile: ASTM F1066: 12 inch x 12 inch, 1/8" thick; Standard Excelon Series, as manufactured by Armstrong or equal.
- B. Acceptable Manufacturers:
 - 1. Amtico International Inc.
 - 2. Armstrong World Industries, Inc.
 - 3. Congoleum Corp.
 - 4. Johnsonite, Div. of Duramax, Inc.
 - 5. Mannington Commercial

2.3 STAIR TREADS AND VINYL BASE

- A. Manufacturers:
 - 1. Johnsonite, Div. of Tarkett, Inc.
 - 2. Armstrong World Industries, Inc.
 - 3. Roppe Corp.
 - 4. Substitutions: Permitted
- B. Vinyl base: FS SS-W-40, Type 2, 4 inch high; 1/8" thick; top set coved. (color by architect/ owner).
- C. Stair Treads: Roppe Type 98 Rubber Stair Tread or equal.
- D. Stair Riser: Maintain height and length in one piece, matching treads in material and color.
- E. Stringers: Maintain height in one piece and in maximum available lengths, matching treads in material and color.

2.4 ACCESSORIES

- A. Subfloor Filler: Cementitious type recommended by floor material manufacturer.
- B. Primers and Adhesives: Waterproof, types recommended by floor material manufacturer.
- C. Sheet Flooring Vinyl Welding Rod: Solid vinyl bead produced by manufacturer of vinyl flooring for heat welding seams, in color [matching] [contrasting with] field color.
- D. Sealer and Wax: Types recommended by floor material manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect floor to be installed immediately upon arriving at job site; perform a moisture test.
- B. Do not begin installation until substrates have been properly prepared.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. The installation of the resilient flooring shall not begin until the work of all other trades has been completed, particularly wet and overhead trades.
- E. Areas to receive flooring shall be adequately lighted during all phases of the installation process.

3.2 PREPARATION

- A. Clean and prepare substrate according to manufacturer's written instructions to ensure adhesion of resilient product.
- B. Using Portland based cementitious base leveler or patch fill and cover all seams, nail heads, voids, cracks, and expansion joints. Achieve smooth, even, firmly attached substrate for best finish results. Gypsum based underlayment not acceptable unless it is first properly prepared.
 1. Encapsulate any gypsum with a premium latex primer/sealer recommended by gypsum manufacturer.
 2. Cement slabs can be floated or repaired using Portland cement based compound. Follow patch manufacturers' instructions.
 3. Once substrate flatness is achieved, 1/8 inch in 10 feet (3 mm in 3048 mm), continue with the next step.
- C. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances that cannot be removed.
- D. Concrete Substrates:
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrates coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone using mechanical methods recommended by manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - a. A PH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.

4. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb. of water / 1,000 sqft. In 24 hours unless otherwise noted in manufacturers printed literature.
 - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have achieved a maximum relative humidity of 75% relative humidity level measurement.
 - c. Moisture testing shall be performed at least 60 days in advance of flooring installation to allow sufficient drying time for levels acceptable to manufacturer.

3.3 INSTALLATION

- A. General:
 1. Permanent HVAC system shall be turned on and set to a minimum of 65 degrees F (20 degrees C) for a minimum of 48 hours prior to, during and 48 hours after installation. After the installations, the maximum temperature should not exceed 125 degrees F (37 degrees C).
 2. All products shall be allowed to acclimate at least 24 hours before installation. This means product shall be placed in the same room as the install that is taking place and removed from its factory packaging.
 3. Material shall be visually inspected prior to installation.
 4. Ensure that all recommendations for sub-floor and jobsite conditions are met prior to beginning the installation. Once the installation is started, Contractor and installer have accepted those conditions.
 5. Install in accordance with manufacturer's installation instructions for each product type and application specified.
- B. Vinyl Composition Tile Layout and Installation:
 1. Spread adhesive and set flooring in place. Press tile flooring to attain full adhesion.
 2. Install tile flooring with joints and seams parallel to building lines. Allow minimum 1/2 full size tile width at room or area perimeter.
 3. Scribe flooring to produce tight joints at items penetrating flooring.
 4. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.
 5. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. Adhere base tight to wall and floor surfaces.
 6. Fit joints tightly and make vertical. Miter internal corners. At external corners, use pre-molded units.
- C. Resilient Tile and Planks Layout and Installation:
 1. Position planks so the end seams are no closer than the width of the plank being installed. Maintain this approach to staggering the planks throughout the entire installation while keeping a random appearance.
 2. Center tiles or planks in rooms and hallways so borders are not less than half a tile or plank when possible.

3. Cut edges shall always be installed against a wall.
4. Install using tile and plank installation techniques recommended by manufacturer.
5. Install tiles, planks, borders and feature strips in locations and configurations indicated on the Drawings.

D. Resilient Tile and Planks Product Application

1. Install in accordance with adhesive recommendations on the label or data sheet.
2. Refer to manufacturer's literature for selection criteria for applicator, type.
3. Using proper applicator, apply adhesive in accordance with label on adhesive.
4. For LooseLay installations only, spread a 4 inch (100 mm) wide band of adhesive around the perimeter of the area designated as an extreme condition area. An additional 4-inch (100 mm) band shall be spread at approximately 10-foot (3 m) intervals, forming a grid pattern.
5. For transitional areas, from LooseLay to another floor covering of a different height, a 4-inch (100 mm) band of adhesive should be spread across the length of the transition.

3.4 CLEANING

- A. Wipe off any adhesive on floor as installation proceeds. Wait 48 hours before applying the cleaning and maintenance products.
- B. Prior to installation of permanent fixtures or furniture, remove all dirt, debris, or residual adhesive and clean the floor. If desired, a protective covering may be applied at this time. Specific products and instructions are available from the manufacturer.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 MAINTENANCE

- A. Comply with manufacturer's instructions for proper cleaning and maintenance of the products.

END OF SECTION

SECTION 09651

CARPET

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Carpet tile.

1.2 SUBMITTALS

- A. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, location of edge moldings and edge bindings.
- B. Samples: Submit two samples illustrating color and pattern for each carpet material specified.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Store materials in area of installation 48 hours prior to installation.
- B. Maintain minimum 70 degrees F ambient temperature 1 day prior to, during and 24 hours after installation.
- C. Ventilate installation area during installation and for 3 days after installation.

1.5 WARRANTY

- A. Contractor shall agree to return to the project after 6 months to recheck the installation and re-glue areas that are not correct at no cost to the Owner.
- B. Provide special project warranty, signed by the Contractor, agreeing to repair or replace defective materials and workmanship of carpeting work at no cost to the Owner during 2-year period following substantial completion.
- C. Furnish 10-year warranty for texture retention, wear, static protection, edge ravel, run resistance strength, and full compliance with the carpet specifications.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Contractor shall include the following material allowance for carpet:
 - 1. CPT- (Carpet Tile) - \$37/ Square Yard
- B. Carpeting shall have a flammability rating per ASTM E-648. Carpeting shall have anti-static features under 3.5 KV per 70/20 AATCC-134.

2.2 ACCESSORIES

- A. Sub-Floor Filler: Cementitious Type recommended by flooring material manufacturer.
- B. Tackless Strip: Carpet gripper, of type recommended by carpet manufacturer to suit application, with attachment devices.
- C. Carpet Edge Guard Vinyl Edging: 1" wide section for joining carpet to tile; extruded or molded heavy-duty vinyl; colors selected by Architect/ Owner from standard colors within industry standards.
- D. Seam Adhesive: Recommended by manufacturer.
- E. Contact Adhesive: Recommended by carpet manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify floor surfaces are smooth and flat and are ready to receive work.
- B. Verify concrete floors for glue-down installation are ready for carpet installation by testing for moisture emission rate and alkalinity. Obtain instructions when test results are not within specified limits.
- C. Verify concrete floors are dry to a maximum moisture content of 7%: and do not exhibit alkalinity, carbonization, or dusting.

3.2 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- C. Vacuum clean substrate.

3.3 INSTALLATION

- A. Install carpet in accordance with Carpet and Rug Institute CRI 104 - Standard for Installation of Commercial Carpet.
- B. Verify carpet match before cutting to ensure minimal variation between dye lots.
- C. Carpet Tile:
 - 1. Install carpet tile and accessories and adhesive in accordance with manufacturers' instructions.
 - a. Integrate and blend carpet from different cartons to ensure minimal variation in color match.
 - b. Tiles are embossed on the back with arrows showing pile direction. Make sure arrows point in the same direction throughout an installation.
 - c. Cut carpet tiles straight. Fit carpet tight to intersection with vertical surfaces without gaps.
 - d. Carpet shall be installed with full spread (entire floor) of releasable adhesive provided the manufacturer will provide full standard warranty.
 - e. Locate change of color or pattern between rooms under door centerline.
 - f. Brush pile back and tip individual tiles into place to avoid catching pile in the joint. Frequently check tile joints for proper alignment and firm abutment. Avoid excessively tight joints which will cause tiles to peak or buckle.
 - g. Checking Tightness and Establishing Gain Factor: Although tiles are exactly 18"X18" square, there will be slight gain due to joints. To check, measure 11 installed tiles from edge-to-edge, spanning 10 joints. This measurement should be no greater than 198-1/4" inches (1/4 inch gain) for tufted products. If more gain is measured, tiles are not butted tightly enough. Reposition and check again. Use this method to continually check for excessive gain.
 - h. Cut Tiles: Fixtures, architectural elements, and perimeters will require tile cutting. Always cut tiles from the back. Always secure cut or partial tiles with releasable adhesive or double-sided tape.
 - i. Electrical Floor Outlets: Electrical floor outlets are usually wired after tile installation. Install tile over electrical boxes and mark locations with a piece of tape. Tiles can be lifted for cut outs later.
- D. Complete installation of edge strips, concealing exposed edges.
- E. Cleaning:
 - 1. Remove excess adhesive from floor, base, and wall surfaces without damage.
 - 2. Clean and vacuum carpet surfaces.
- F. **Provide 10% of total material required for the job for attic stock. To be stored on-site per architect/ owners direction.**

END OF SECTION

SECTION 09900

PAINTS AND COATINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and field application of paints stains, varnishes, and other coatings.

1.2 SUBMITTALS

- A. Product Data: Submit data on finishing products.
- B. Samples: Submit two paper chip samples, in size illustrating range of colors and textures available for each surface finishing product scheduled.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Upon conclusion of the project, the contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.4 QUALITY ASSURANCE

- A. Surface Burning Characteristics:
 - 1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84 NFPA 255 UL 723.
- B. ASTM D359-35 Specifications for Shellac Varnish.
- C. Perform Work in accordance with State Municipality of Highways Public Work's standard.
- D. Maintain one copy of each document on site.
- E. Mockups: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish surfaces for verification of products, colors and sheens.
 - 2. Finish area designated by Architect.
 - 3. Provide samples that designate primer and finish coats.
 - 4. Do not proceed with remaining work until the Architect approves the mock-up.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Store and apply materials in environmental conditions required by manufacturer's instructions.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin Williams Company (The): products indicated or comparable product from one of the following:
 1. Sherwin-Williams
 2. PPG Architectural Finishes
 3. Olympic
 4. Glidden
 5. Devoe Paint Co.
 6. ICI Paint Stores
 7. MAB Paints

2.2 COMPONENTS

- A. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve finishes specified.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions are ready to receive Work.
- B. Measure moisture content of porous surfaces using electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent.

3.2 PREPARATION

- A. Clean all surfaces to be painted.
- B. Correct minor defects and clean surfaces affecting work of this section.
- C. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or applying finishes.

- D. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- E. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- F. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with solution of tri-sodium phosphate, rinse well and allow to dry.
- G. Uncoated Steel and Iron Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Prime paint after repairs.
- H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Clean surfaces with solvent. Prime bare steel surfaces.
- I. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- J. Interior Wood Items Scheduled to Receive Transparent Finish:
 - 1. Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
 - 2. Assure a dust-free environment prior to application of finish.
- K. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.
- L. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.

3.3 APPLICATION

- A. Sand wood and metal surfaces lightly between coats to achieve required finish.
- B. Where clear finishes are required, tint fillers to match wood.
- C. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- D. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.
- E. Finishing Mechanical and Electrical Equipment:
 - 1. Paint shop primed equipment.

2. Remove unfinished louvers, grilles, covers, and access panels and paint separately. Paint dampers exposed behind louvers, grilles, convector and baseboard cabinets to match face panels.
3. Prime and paint exposed pipes, hangers, brackets, collars and supports, except where items are prefinished.
4. Paint exposed conduit and electrical equipment occurring in finished areas.
5. Paint both sides and edges of plywood backboards.
6. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

F. Cleaning: As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

3.4 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

A. Metal Fabrications: Exposed surfaces of lintels.

3.5 SCHEDULE - INTERIOR SURFACES

A. Wood - Painted

1. One coat S-W PrepRite Primer, B51-600 Series.
2. Two coats S-W ProIndustrial Waterbased Alkyd Urethane (available in Low Sheen, Semi-Gloss and Gloss)

B. Wood – Transparent

1. One coat Minwax Performance Series Tintable Wood Stain
2. Two coats Minwax waterbased oil-modified polyurethane (available in Satin, Semi-Gloss and Gloss)
3. Lightly sand with steel wool between coats.

C. Existing Concrete and Concrete Block - Painted

1. One coat primer compatible with existing base coat of paint and new topcoat.
2. Two coats S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy (available in Eggshell and Semi-Gloss)

D. Existing Concrete and Concrete Block - Painted – High Performance Coating (High traffic)

1. One coat primer compatible with existing base coat of paint and new topcoat.
2. Two coats S-W ProIndustrial Waterbased Catalyzed Epoxy (available in Eggshell and Gloss)
3. OPTIONAL finish coat (for color stability): S-W ProIndustrial Waterbased Acrolon 100, B65-720 Series (Gloss).

E. Concrete and Concrete Block

1. One coat S-W ProIndustrial Heavy Duty Block Filler, B42W150.
2. Two coats S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy (available in Eggshell and Semi-Gloss).

F. Concrete and Concrete Block – High Performance Coating (High traffic)

1. One coat primer compatible with existing base coat of paint and new topcoat.
2. Two coats S-W ProIndustrial Waterbased Catalyzed Epoxy (available in EggShell and Gloss)
3. Finish coat (for color stability): S-W ProIndustrial Waterbased Acrolon 100, B65-720 Series (Gloss).

G. Steel

1. One coat S-W ProIndustrial Pro-Cryl Universal Primer, B66-1310 Series.
2. Two coats S-W Pro Industrial Waterbased Alkyd Urethane (available in Low Sheen, Semi-Gloss and Gloss).

H. Plaster, Gypsum Board

1. One coat S-W ProMar 200 Zero VOC Latex Primer, B28W2600 Series.
2. Two coats S-W ProMar 200 Zero VOC Eggshell, B20-2600 Series.

END OF SECTION

SECTION 10520

SEMI-RECESSED FIRE EXTINGUISHER CABINETS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Furnish all material, labor and equipment necessary to complete all fire extinguisher cabinets as indicated on the Drawings and herein specified.

1.2 SUBMITTALS

- A. Submit product data under provisions of Section 01001.
- B. Include physical dimensions, operational features, color and finish, anchorage details, rough-in measurements, location, and details.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - FIRE EXTINGUISHERS

- A. Kidde
- B. Substitutions: Under provisions of Section 01001.

2.2 ACCEPTABLE MANUFACTURERS - CABINETS

- A. J.L. Industries.
- B. Larsen's Manufacturing Co.
- C. Potter-Roemer, Inc.
- D. Substitutions: Under provisions of Section 01001.

2.3 FIRE EXTINGUISHERS

- A. Kidde - ABC Multi-purpose dry chemical 10 pound UL rating 4A:60B:C

2.4 CABINETS

- A. Cabinet: Formed sheet steel, 18 gage cold-rolled steel, semi-recessed, inside dimensions 27" x 12" x 8". Painted white.
- B. Door: 18 gage thick, reinforced for flatness and rigidity; solid door.
- C. Mounting Hardware: Appropriate to cabinet.

D. Graphic Identification: "Fire Extinguisher" vertically in die cut red letters (1" min).

2.5 FABRICATION

- A. Form body of cabinet with tight inside corners and seams.
- B. Predrill holes for anchorage.
- C. Form perimeter trim and door stiles by welding, filling, and grinding smooth.
- D. Hinge doors for 180 degree opening with continuous piano hinge. Provide roller type catch.

2.6 FINISHES

- A. Cabinet Trim and Door: Satin baked white enamel.
- B. Cabinet Interior: White enamel.

PART 3 EXECUTION

3.1 INSPECTION

- A. Verify rough openings for cabinet are correctly sized and located.
- B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install cabinets plumb and level in wall openings in accordance with all applicable codes.
- B. Secure rigidly in place in accordance with manufacturer's instructions.

3.3 SCHEDULE

- A. Provide 3 Semi-Recessed Fire Extinguisher Cabinets. Locations to be coordinated with Owner/ Architect/ Fire Department.

END OF SECTION

SECTION 10800

TOILET ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes toilet and washroom accessories.

1.2 SUBMITTALS

- A. Product Data: Submit data on accessories describing size, finish, details of function, attachment methods.
- B. Submit manufacturer's installation instructions under provision of Section 01001.

PART 2 PRODUCTS

2.1 TOILET ACCESSORIES

- A. Manufacturers:
 - 1. Bradley
 - 2. Bobrick
 - 3. McKinnley Parker
 - 4. ASI

2.2 COMPONENTS

- A. Products listed on Drawings.
- B. Furnish keys for each accessory to Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify exact location of accessories for installation.

3.2 PREPARATION

- A. Deliver inserts and rough-in frames to site. Provide templates and rough-in measurements.
- B. Install blocking as required in walls.

3.3 INSTALLATION

- A. Install plumb and level, securely and rigidly anchored to substrate.
 - 1. Mounting Heights and Locations: As indicated on Drawings.
- B. Install fixtures, accessories and items in accordance with manufacturer's instructions.

3.4 SCHEDULES

- A. Toilet paper dispenser: Bradley Model 5234; Controlled delivery, dual-roll.
- B. Grab bars: Bradley Model 8120, Standard Stainless-Steel Finish: Size as shown on the drawings; provide tamper proof type mounting kits and anchoring devices appropriate for type of wall construction.
- C. Mirrors: Bradley Model 780 mirror in sizes as shown on drawings.
- D. Baby Changing Station: Koala Kare KB100-01-ST recessed

END OF SECTION

SECTION 12330
MANUFACTURED CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Casework, countertops and accessories.

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Framing and blocking in walls, floors and ceiling to support equipment.
- B. Section 06200 - Finish Carpentry.
- C. Section 09650 - Resilient Flooring: base for casework including floor cabinets and table legs.
- D. Division 15 - Mechanical: Sinks, faucets, fittings, traps, stops, tail pieces, vacuum breakers, and other fixtures, electrical and mechanical runs and connections.
- E. Division 16 - Electrical: Connections for electrical service lines, wire and conduit to service fixtures.

1.3 REFERENCES

- A. ADA (ATBCB ADAAG): Americans with Disabilities Act Accessibility Guidelines.
- B. ANSI 208.1: Standards for Particleboard.
- C. Architectural Woodwork Institute (AWI): Quality Standards.
- D. NEMA LD 3: High Pressure Decorative Laminates.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01001.
- B. Manufacturer's data sheets on each product to be used, including:
 - 1. Test reports certifying that the casework finish complies with manufacturer's standards for chemical and physical resistance performance requirements.
 - 2. Performance test reports from an independent testing lab on each specified top material.
 - 3. Preparation instructions and recommendations.
 - 4. Storage and handling requirements and recommendations.
 - 5. Installation methods.

- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Indicate locations of blocking and reinforcements required.
 - 2. Indicate locations and types of service fittings, together with associated service supply connection required.
 - 3. Include indicators of exposed conduits, if required, for service fittings.
 - 4. Include coordinated dimensions for equipment specified in other Sections or provided by Owner.
- D. Certifications:
 - 1. All work will adhere to the Premium or Custom Grade "Quality Standards" as defined by the Architectural Woodworking Institute (AWI) in the latest edition of the AWI "Quality Standards".
 - 2. Any item not given a specific quality grade by the AWI "Quality Standards" shall be Custom Grade as defined in the latest edition of the AWI "Quality Standards" manual.
- E. Selection Samples: For each finish product specified, one complete set of color chips representing manufacturer's full range of available colors and patterns.
 - 1. One set of samples indicating full range of finishes for countertop specified.
 - 2. One set of casework samples indicating full range of finishes for casework specified.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Not less than 5 years of experience in the actual production of specified products. If requested by Architect, submit documentation of plant facilities and capacity to provide casework for this Project.
- B. Installer Qualifications: Firm with 5 years of experience in installation or application of systems similar in complexity to those required for this Project, plus the following.
 - 1. Authorized distributor of manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of fabrication techniques and application workmanship.
 - 1. Installation in area designated by Architect.
 - 2. Do not proceed with remaining work until installation is approved by Architect.
 - 3. As selected and required by Architect's request for mock-up: Install base cabinet with drawer and cupboard, one adjustable shelf, hinged door and applicable hardware. Wall case with adjustable shelf, hinged door and applicable hardware. Tall case with adjustable shelves, fixed center shelf, hinged door and applicable hardware.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Casework shall be protected in transit.

- B. Store products under cover in a ventilated building not exposed to extreme temperature and humidity changes prior to installation. Do not store or install casework in building until concrete, masonry, and drywall/plaster work is dry.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction if applicable.

1.7 PROJECT CONDITIONS

- A. For delivery and installation of casework and equipment, building conditions shall comply with AWI Standard 1700-G-3 and 1700-G-4 and be as follows:
 - 1. Flooring required to be placed under casework and equipment installed.
 - 2. Wood or metal blocking (wall grounds) installed within partitions to allow for immediate installation upon delivery.
 - 3. Heating and air conditioning systems providing consistent temperature and humidity conditions to comply with by AWI Standard 1700-G-4 and 1700-G-5.
 - a. Relative humidity not less than 40 percent, nor more than 60 percent.
 - b. Temperatures not less than 65 degrees F (18 degrees C) and not greater than 80 degrees F (27 degrees C) in areas of casework and equipment installation.
 - 4. Overhead mechanical, electrical and plumbing rough-in work is complete.
 - 5. Wet operations complete prior to delivery.
 - 6. Ceiling grids (with or without ceiling tiles), overhead soffits, ductwork and lighting installed.
 - 7. Painting complete.

1.8 WARRANTY

- A. Casework Manufacturer Warranty: 5 years from date of delivery. Warranty is for the conditions indicated below, and when notified in writing from Owner, manufacturer shall promptly investigate and address said deficiencies.
 - 1. Defects in materials and workmanship.
 - 2. Deterioration of material and surface performance below minimum standards as certified by independent third party testing laboratory.
 - 3. Within the warranty period, we shall, at our option, repair, replace, or refund the purchase price of defective casework.
- B. Casework manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Casework manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Casework manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of casework; and, shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of their products.
 - 1. The warranty with respect to products from another company sold by the casework manufacturer is limited to the warranty extended by that other company.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. LSI Corp. of America Inc.
- B. Stevens Cabinet Co. Inc.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01001.

2.2 DESIGN

- A. Full Overlay Door Design, LSI New Century Series L44 (Basis of design).
 - 1. Drawings and specifications are based upon casework as manufactured by LSI Corporation of America, Inc., 2100 Xenium Lane, Minneapolis, Minnesota, 55441. Construction and design shall be LSI New Century Series L44.
 - 2. Drawer fronts and hinged doors shall overlay the cabinet body. Maintain a maximum 1/8 inch (3.2 mm) reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet
- B. ATBCB ADAAG, Americans with Disabilities Act Requirements: The following special requirements shall be met, where specifically indicated on architectural plans as "ADA", or by General Note. Shall be in compliance with Federal Register Volume 56, No. 144, Rules and Regulations:
 - 1. Countertop height: With or without cabinet below, not to exceed a height of 34 inches (864 mm) A.F.F., (Above Finished Floor), at a surface depth of 24 inches (610 mm).
 - 2. Kneespase clearance: Shall be minimum 29 inches (737 mm) A.F.F. at apron, and 30 inches (762 mm) clear span width.
 - 3. 12 inches (305 mm) deep shelving, adjustable or fixed: Not to exceed a range from 9 inches (229 mm) A.F.F. to 54 inches (1372 mm) A.F.F.
 - 4. Wardrobe cabinets: Shall be furnished with rod/shelf adjustable to 48 inches (1219 mm) A.F.F. at a maximum 21 inches (533 mm) shelf depth.
 - 5. Sink cabinet clearances: In addition to above, upper kneespase frontal depth shall be no less than 8 inches (203 mm), and lower toe frontal depth shall be no less than 11 inches (279mm), at a point 9 inches (229 mm) A.F.F., and as further described in Volume 56, Section 4.19.

2.3 MATERIALS AND COMPONENTS

- A. Laminated Plastics/Finishes:
 - 1. High-pressure plastic laminate, 0.028 inch (.71 mm) in thickness, for exterior surfaces shall meet NEMA LD3-2000 VGL standards including thickness.
 - a. Exterior Color:
 - 1) Standard finish from casework manufacturer's standard 200 plus stock colors consisting of wood grain, patterns and solid colors.

- 2) Direction of wood grain shall be vertical on door, end panels, fascia panels, and exposed backs; horizontal on drawer faces, aprons, and top rails.
- 2. Plastic Laminate Balancing Sheet: White high-pressure cabinet-liner, 0.020 inch (.051 mm) in thickness shall meet NEMA LD3-2000 CLS standards. Provide for balancing exterior surface laminates.
- 3. Countertop High-Pressure Plastic Laminate:
 - a. High-pressure plastic laminate, textured finish 0.048 inch (1.22 mm) thickness or .042 inch (1.07 mm) postforming grade as detailed.
 - b. Countertop Colors:
 - 1) Standard finish from casework manufacturer's standard 200 plus stock colors consisting of wood grain, patterns and solid colors.
 - 2) Provide up to five different colors as selected.
 - c. Heavy gauge neutral colored backing sheet for balanced construction.
- 4. Pressure Fused Laminate:
 - a. Melamine resin impregnated, 85 gram PSM minimum, thermofused to core under pressure.
 - b. Comply with NEMA LD3-2000 VGL standards and NEMA LD3-2000 CLS standards.
 - c. White pressure fused laminate for cabinet interiors behind door and drawers, interiors of all open cabinets, and underside of wall cabinets.
 - d. Balanced at all concealed surfaces with same thermofused melamine. Unsurfaced coreboard or simple backers not allowed.

B. Core Materials: Particleboard, minimum 47 lb. (21.3 kg) density, of balanced 3-ply construction with moisture content not to exceed 8 percent. Particleboard shall conform to ANSI A208.1, Grade M-3.

C. Component Thicknesses: Cabinets shall have the following minimum core thicknesses:

- 1. Cabinet Backs, Drawer Body, Drawer Bottom: 1/2 inch (12.7 mm) thick. Exposed backs to 3/4" particleboard with plastic laminate exterior.
- 2. Door and Drawer Face, Base, Wall, and Tall Cabinet Tops and Bottoms, Cabinet Sides, Drawer Spreaders, Cabinet Back Rear Hangstrips, Structural Dividers, Exposed Cabinet Backs and Shelves in Cabinets: 3/4 inch (19.1 mm).
- 3. Exposed Countertops: 3/4" particleboard covered with 1/16" high-pressure laminate and self-edged equal to Formica. Use thicker countertops as required or shown at longer open spans.
 - a. Joints shall be flush and hairline in appearance. Provide backer sheets for plastic laminate work.
 - b. Countertops up to 10' long shall be in one piece. Tops over 10' long shall have splined joints in backing. Joint in plastic laminate shall be at least 12" from joint in backing. Joints in backing shall be reinforced to prevent separating.

D. Edging Types: Provide one or more of the following in accordance with "Edging Locations":

- 1. FlatEdge PVC: .020 inch (.51 mm). Solid, high-impact, purified, color-thru, acid resistant PVC edging machine-applied with hot melt adhesives, automatically

trimmed face, back and corners for uniform appearance. Manufacturer's option of 0.030 inch (0.76 mm) high-pressure plastic laminate if PVC match is unavailable.

2. 3 mm thick PVC: Solid, high-impact, purified, color-thru, acid resistant, pre-lamination primed edging, machine-applied with hot melt adhesives, automatically trimmed, inside/outside length-radiused for uniform appearance, buffed and corner-radiused for consistent design.

E. Overlay Design Edging Locations. Provide the above specified edging types at the following locations, of the following colors:

1. Door/Drawer-Front edging:
 - a. 3mm PVC. One color as selected from manufacturer's 30 standard colors, color-matched to manufacturer's standard laminates.
 2. Cabinet body edge, including door/drawer front spacer rail: FlatEdge PVC, color matched to door/drawer face or as selected.
 3. Forward edge of interior body components, interior dividers, shelf, and top edges of drawer body: FlatEdge PVC to match cabinet interior surface color.

F. Hardware:

1. Hinges:
 - a. Heavy duty, 120 degree self-closing 3-way adjustment Concealed Overlay Hinge with high strength screw attachment. Hinge shall meet ANSI/BHMA A156.9 Grade 1 requirements.
 - 1) One pair per door to 48 inches (1219mm) height, One and one-half pair over 48 inches (1219mm) in height. Hinge shall accommodate 13/16 (20.6mm) thick laminated door and allow 270 degree swing.
 - 2) Finish: SA151 NP Matte Nickle Finish.
 2. Pulls: Pull design shall be in compliance with ADA requirements.
 - a. Bent Wire design, LH-321, 4 inches (101.6 mm):
 - 1) ChromeCoat powder finish.
 3. Sliding Door Hardware:
 - a. Framed 13/16 inch (20.6 mm) thick stile and rail sliding doors: LH-372 top mounted track with dual roller hangers. Vertical adjustment for accurate alignment.
 4. Drawer Slides:
 - a. Standard Drawers: Accuride 3832 Medium Duty Drawer Slide, 3832-EC, easy-closing design, standard clear zinc finish, with positive in-stop, detent out-stop, and out-keeper to maintain drawer in 80 percent open position. Full length cold-rolled steel and ball bearing slides. Minimum dynamic (operational) load rating of 100 pounds (45 kg) at 50,000 cycles.
 5. Catches: Catch shall provide opening resistance in compliance with the Americans with Disabilities Act.
 - a. Twin Ball Solid Brass Adjustable Catch. Provide two at each tall cabinet door. Catch finish shall be dull chrome.
 6. Adjustable Shelf Supports: Shall be LH-354 twin pin design with anti -tip-up shelf restraints for both 3/4 inch (19.1 mm) and 1 inch (25.4 mm) shelves.

Design shall include keel to retard shelf slide-off, and slot for ability to mechanically attach shelf to clip. Load rating shall be minimum 300 lb (136 kg) each support without failure. Cabinet interior sides shall be flush, without shelf system permanent projection.

7. Wardrobe Rod: Shall be 1-1/16 inches (27 mm) rod, LH-362, supported by LH-363 flanges.
8. Molded Trays:
 - a. High-impact Polyethylene with cardholders. Color, White.
 - b. Size: 10-1/2 inches W by 3-1/2 inches H by 19 inches D (267 mm W by 89 mm H by 483 mm D).
 - c. Trays shall glide on molded, twin pin side rails, adjustable 1-1/4 inches (32 mm) on center. Color, White.
9. Molded Personal Pencil Drawer: High-impact 100 Polystyrene with in-stop, out-stop, and self-closing features. Provide under top mounted 100 lb (45 kg) self-closing slides. Twelve compartment drawer body, and slides, Black. Provide where indicated on plans as "molded pencil drawer" or as required by intent of design.

2.4 CABINET CONSTRUCTION

A. Workmanship:

1. Exposed exterior cabinet surfaces shall be .030 inch (.76 mm) high-pressure laminate. Laminate surface/balancing liner to core under controlled conditions by approved and regulated laminating methods to assure a premium lamination. Natural-setting hybrid P.V.A. Type III water resistant adhesives that cure through chemical reaction, containing no health or environmentally hazardous ingredients, shall be used.
 - a. Methods requiring heat are not allowed.
 - b. "Contact" methods of laminating are not allowed.
2. Cabinet parts shall be accurately machined and bored for premium grade quality joinery construction utilizing automatic machinery to insure consistent sizing of modular components. End panels shall be doweled to receive bottom and top.
3. Back panel shall be fully bound (dadoed) into, and recessed 7/8 inch (22.2 mm) from the back of cabinet sides, top, and bottom to insure rigidity and a fully closed cabinet. Cabinet back shall be mechanically fastened from rear of body for tight interior fit and sealed with full-perimeter high-strength hot-melt adhesive.
4. Drawer bottom shall be fully bound (dadoed) and glued into and recessed 1/2 inch (12.7 mm) up from the bottom of sides, back, and sub-front. Sides of drawer shall be doweled to receive drawer back and sub-front.
5. 3/4 inch (19.1 mm) thick hang rails shall be mechanically fastened to end panels of all wall, base, and tall cabinets for extra rigidity and to facilitate installation.
6. All cases shall be square, plumb, and true.
7. Provide removable back panels and closure panels for plumbing access at sink cabinets, and where required.

B. Detailed Requirements for Cabinet Construction:

1. Sub-Base:

- a. Cabinet sub-base shall be separate and continuous water resistant exterior grade plywood with concealed fastening to cabinet bottom. Ladder-type jobsite construction of individual front, back, and intermediates, to form a secure and level platform to which cabinets attach. No cabinet sides-to-floor will be allowed.
 - b. Sub-base at exposed cabinet end panels shall be recessed 1/4 inch (6.4 mm) from face of finished end, for flush installation of finished base material by other trades.
2. Structural Cabinet Body:
 - a. Cabinet parts shall be accurately machined and bored for premium grade quality joinery construction utilizing automatic machinery to ensure consistent sizing of modular components. Dowel end panels to receive bottom and top.
 - b. Cabinets over 36 inches (914 mm) wide shall be furnished with a mechanically fastened, yet removable, vertical divider to reduce horizontal member/shelf deflection. Wall cabinets shall have a clear inside nominal depth of 12 inches (305 mm) unless detailed otherwise.
3. Cabinet Top and Bottom:
 - a. Solid sub-top shall be furnished for all base and tall cabinets.
 - b. At cabinets over 36 inches (914 mm), bottoms and tops shall be mechanically joined by a fixed divider.
 - c. Exterior exposed wall cabinet bottoms shall be Pressure Fused white laminate both sides. Assembly devices shall be concealed on bottom side of wall cabinets.
4. Cabinet Ends:
 - a. Holes drilled for adjustable shelves 1-1/4 inches (32 mm) on center.
 - b. Exposed exterior cabinet ends shall be laminated with high-pressure plastic laminate, balanced with high-pressure cabinet-liner interior surface.
5. Fixed and Adjustable Shelves:
 - a. Thickness shall be 3/4 inch (19.1 mm).
 - b. Shelves shall meet the loading/deflection standards of the National Particleboard Association.
6. Cabinet Backs:
 - a. Cabinet backs shall be minimum 1/2 inch (12.7 mm) thick, inset from rear of body, and fully bound (dadoed) four sides. Rear, unexposed, side of back perimeter shall be toe-nailed with mechanical fasteners for tight interior fit and direct connection of back panel to body, and sealed with full-perimeter high-strength hot-melt adhesive.
 - b. Provide 3/4 inch (19 mm) thick hang rails fastened to back/body as specified in this Section. Hang rails shall be located at rear of cabinet back and fastened to cabinet sides. Provide minimum of 2 at base, 2 at wall, and 3 at tall cabinets.
 - c. Exposed exterior backs shall be high-pressure plastic laminate balanced with high-pressure cabinet-liner.
7. Door and Drawer Fronts:
 - a. Overlay Design: Laminated door and drawer fronts shall be 13/16 inch (20.6 mm) thick for all hinged and sliding doors. Drawer fronts and

hinged doors shall overlay the cabinet body. Maintain a maximum 1/8 inch (3.2 mm) reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet. Laminated door and drawer fronts shall be 13/16 inch (20.6 mm) thick for all hinged and sliding doors.

- b. Front Rail: Provide minimum 3/4 inch (19.1 mm) by 6 inches (152 mm) by full width cabinet body rails immediately behind all door/drawer and multiple drawer horizontal joints to maintain exact body dimensions, close off reveal, and be locator for lock strikes.
- c. Stile and Rail doors shall be 13/16 inch (20.6 mm) thick with full 1/4 inch (6.4 mm) plate glass. Available hinged or sliding. All exposed lite-opening edges shall be trimmed and glazed with extruded glazing bead.
- d. Frameless sliding glass doors shall be 1/4 inch (6.4 mm) thick plate glass with ground and polished edges. Fit with anodized aluminum shoes and nylon rollers.

8. Drawers:

- a. Drawer fronts shall be applied to separate drawer body component sub-front.
- b. Drawer sides shall be doweled and glued to receive front and back, machine squared and held under pressure to set.
- c. Typical 1/2 inch (12.7 mm) drawer bottom, recessed, shall be fully bound (dadoed) into front, sides, and back. Routing, in drawer body for bottom, shall receive continuous glue.
- d. Reinforce drawer bottoms with 1/2 inch (12.7 mm) by 4 inches (101.6 mm) front-to-back intermediate underbody stiffeners, mechanically fastened. One at 24 inches (610 mm), two at 36 inches (914 mm), and over.
- e. Paper storage drawers shall be fitted with full width hood at back.

9. Vertical and Horizontal Dividers:

- a. Natural hardboard 1/4 inch (6.4 mm) thick, smooth both faces. Secured in cabinet with molded plastic clips.
- b. Pressure Fused laminate 3/4 inch (19.1 mm) thickness. Sub-dividers secured in cabinet with molded plastic clips or dowels.

2.5 COUNTERTOP/ WINDOW SILL CONSTRUCTION

A. Material as indicated on drawings.

- 1. High pressure plastic laminate bonded to core. Thickness as shown on plans. Underside shall be properly balanced with heavy gauge backing sheet. Furnish countertops with edge treatment and design profile as shown on drawings. Provide tops in as long as practical continuous lengths. Provide field glued splines at joints. No joints closer than 24 inches (610 mm) either side of sink cutout.

2.6 STEEL FABRICATIONS, ASSEMBLIES, AND SUPPORT DEVICES

A. Provide, of the size and configuration as detailed, or as indicated by product number. Exposed welds shall be ground smooth. Finish shall be Black Powder Coat.

B. Angular Work Top Support Bracket: Shall be factory welded 1-1/2 inches by 1/4 inch (38.1 mm by 6.4 mm) flat steel of vertical, horizontal, and angular design according to size indicated on contract documents, or designated by product number.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not store or install casework in facility until concrete, masonry, drywall and plaster work is dry within limits acceptable to the casework manufacturer.

B. Do not begin installation until substrates have been properly prepared.

1. Walls and openings are plumb, straight and square.
2. Concrete floors level within 1/8 inch (3 mm) level per 10 foot (3000 mm) run, non-accumulative, when tested with a straight edge in any one direction.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 COORDINATION

A. Verify site dimensions of cabinet locations in building prior to fabrication.

B. Coordination with Mechanical, Plumbing and Electrical Contractors: Coordinate work of this Section with work of other Sections including but not limited to:

1. Water and laboratory gas service fittings, piping, electrical devices, and wiring.
2. Installation of fittings according to Shop Drawings and manufacturer's written instructions.
3. Setting bases and flanges of sink and countertop-mounted fittings in sealant recommended by manufacturer of sink or countertop material.
4. Anchorage of fittings, piping, and conduit to laboratory casework, unless otherwise indicated.

C. Coordination with mechanical contractor who shall furnish, install and connect drain lines, service piping, vents, re-vents, in-line vacuum breakers, special plumbing fixtures, traps and tailpieces. Work to be completed through, under or along backs of working surfaces as required and complete final connection of services. Assemble, install and make final connections of service fixtures furnished by casework contractor, including service fixtures in fume hoods. Furnish, install and connect fume hood blowers, motors and all related ductwork. Furnish, install and connect service piping within fume hoods, including final connection.

D. Coordination with electrical contractor who shall furnish, install and connect electrical service lines, wire and conduit within the equipment, including reagent racks and fume hoods. Work to be completed through, under or along backs of working surfaces as required and complete final connection of services. Install and make final connections of electrical fixtures provided by casework installer, including electrical fixtures in fume hoods.

3.3 INSTALLATION

- A. Install casework in accordance with manufacturer's instructions.
 - 1. Installation of casework shall be plumb, level, true and straight, with no distortions.
 - 2. Use concealed shims as required.
 - 3. Provide filler pieces where required. Match face of cabinet.
 - 4. Where casework or equipment butts against other finished work, scribe and cut for an accurate fit.
 - 5. Lubricate operating hardware as recommended by the manufacturer.
- B. Install countertop and edge surfaces in one plane with flush hairline. Locate joints only where shown on Shop Drawings.
 - 1. Provide required holes and cutouts for service fittings.
 - 2. Seal unfinished edges and cutouts in plastic-laminate countertops with heavy coat of polyurethane varnish.
 - 3. Provide scribe moldings for closures at junctures of countertop, curb, and splash, with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.
 - 4. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 5. Provide 3" holes with plastic grommets above all electrical outlets and data jacks below countertops.

3.4 PROTECTION

- A. Inspect casework for damaged or soiled areas; remove, refinish, and touch-up as required.
- B. Protect installed products until completion of project.
- C. Touch-up, repair or replace damaged products before Substantial Completion.
- D. Remove cartons, debris, sawdust, scraps and similar items and leave spaces clean, and casework ready for Owner's use.
- E. Provide the services of a qualified manufacturer's representative to demonstrate operation and maintenance procedures of the installed casework and equipment to the Owner's personnel.

END OF SECTION

SECTION 21 1315

WET-PIPE SPRINKLER SYSTEMS - RENOVATIONS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Design and install modifications to existing wet-pipe sprinkler system.

1.2 RELATED WORK

- A. Division 22 - Plumbing

1.3 REFERENCES

- A. NFPA 13 - Installation of Sprinkler Systems.

1.4 SYSTEM DESCRIPTION

- A. System to provide coverage zone affected in existing building.
- B. Provide system to NFPA 13 ordinary hazard occupancy requirements.

1.5 QUALITY ASSURANCE

- A. Design and installation to conform to NFPA 13.
- B. Equipment and Components: Bear UL Label or marking.
- C. Specialist Firm: Company specializing in sprinkler systems with five (5) years experience.

1.6 REGULATORY REQUIREMENTS

- A. Hydraulic Calculations, Product Data, Shop Drawings, and Low Water Pressure Cut-in Controller: Bear stamp of approval of Fire Marshall.

1.7 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01001.
- B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.
- C. Submit shop drawings, product data and hydraulic calculations to State of Indiana/ Fire Marshal for approval. Submit proof of approval to Architect/Engineer.

1.8 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Section 01700.

1.9 OPERATION AND MAINTENANCE DATA

- A. Submit manufacturer's operation and maintenance data under provisions of Section 01001.
- B. Include written maintenance data on components of system, servicing requirements, and Record Drawings.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary inlet and outlet caps.
- B. Maintain caps in place until installation.

1.11 EXTRA STOCK

- A. Provide extra sprinkler heads under provisions of NFPA 13 and Section 01700.
- B. Provide suitable wrenches for each head type.
- C. Provide metal storage cabinet in location designated.

PART 2 PRODUCTS

2.1 PIPING MATERIALS

- A. Above Ground Inside Building Piping: As permitted by NFPA 13.

2.2 PIPING SPECIALTIES

- A. Automatic Sprinkler Valve: Flow detector with alarm circuits, pressure switch, pressure retard chamber.

2.3 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS

- A. Reliable.
- B. Substitutions: Under provisions of Section 01600.

2.4 SPRINKLER HEADS

- A. Suspended Ceiling Type: Reliable Model G Recessed pendant type with chrome plated finish, with matching escutcheon or equal.

- B. Exposed Area Type: Standard upright type with chrome plated finish.
- C. Fusible Link: Temperature rated for specific area hazard.

PART 3 EXECUTION

3.1 PREPARATION

- A. Coordinate work of the Section with other affected work. Sprinkler contractor shall accommodate ductwork and register locations in the routing of the pipes and heads so there is no interference with the mechanical system as designed.

3.2 INSTALLATION - PIPING

- A. Connect new runs to existing sprinkler system as required.
- B. Place pipe runs to minimize obstruction to other work.
- C. Place piping in concealed spaces above finished ceilings.
- D. Center heads in two directions in ceiling tile and provide piping offsets as required.
- E. Apply strippable tape or paper cover to ensure concealed sprinkler head cover plates do not receive field paint finish at painted ceilings.
- F. Balance of area shall remain active while portions are being modified.

3.3 CLEANING

- A. Flush entire piping system of foreign matter.

3.4 SYSTEM TESTS

- A. Hydrostatically test entire system.
- B. Test shall be witnessed by Fire Marshall.

END OF SECTION

SECTION 22 0523

GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Applications.
- B. General requirements.
- C. Ball valves.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 22 0553 - Identification for Plumbing Piping and Equipment.
- C. Section 22 0719 - Plumbing Piping Insulation.
- D. Section 22 1005 - Plumbing Piping.

1.3 REFERENCE STANDARDS

- A. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves 2017.
- B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2018.
- C. ASME B16.34 - Valves - Flanged, Threaded and Welding End 2017.
- D. ASME BPVC-IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators - Welding Brazing and Fusing Qualifications 2019.
- E. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings 2017.
- F. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves 2013.
- G. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends 2010.

1.4 SUBMITTALS

- A. See Section 01001 - Submittals, for submittal procedures.

- B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.
- E. Maintenance Materials: Furnish Owner with one wrench for every five plug valves, in each size of square plug valve head.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.5 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Obtain valves for each valve type from single manufacturer.
 - 2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Welding Materials and Procedures: Comply with ASME BPVC-IX.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
 - 2. Protect valve parts exposed to piped medium against rust and corrosion.
 - 3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
 - 4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.
 - 5. Secure check valves in either the closed position or open position.
 - 6. Adjust butterfly valves to closed or partially closed position.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection and protect flanges and specialties from dirt.
 - a. Provide temporary inlet and outlet caps.
 - b. Maintain caps in place until installation.
 - 2. Store valves in shipping containers and maintain in place until installation.
 - a. Store valves indoors in dry environment.
 - b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

PART 2 PRODUCTS

2.1 APPLICATIONS

- A. Provide the following valves for the applications if not indicated on drawings:
 - 1. Shutoff: Ball, butterfly, gate.
- B. Domestic, Hot and Cold Water Valves:
 - 1. 2 NPS and Smaller:
 - a. Bronze and Brass: Provide with solder-joint ends.
 - b. Bronze Angle: Class 125, bronze disc.
 - c. Ball: One piece, full port, brass with brass trim.
 - d. Bronze Swing Check: Class 125, bronze disc.
 - e. Bronze Gate: Class 125, NRS.
 - f. Bronze Globe: Class 125, bronze disc.

2.2 GENERAL REQUIREMENTS

- A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.
- B. Valve Sizes: Match upstream piping unless otherwise indicated.
- C. Valve Actuator Types:
- D. Valve-End Connections:
- E. General ASME Compliance:
 - 1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.
 - 2. Solder-joint Connections: ASME B16.18.

2.3 BRONZE ANGLE VALVES

- A. Class 125: CWP Rating: 200 psig.:
 - 1. Comply with MSS SP-80, Type 1.
 - 2. Body: Bronze; ASTM B62, with integral seat and screw in bonnet.
 - 3. Ends: Threaded.
 - 4. Stem: Bronze.
 - 5. Disc: Bronze.
 - 6. Packing: Asbestos free.
 - 7. Handwheel: Bronze or aluminum.

2.4 BRASS BALL VALVES

- A. One-Piece, Reduced-Port with Brass Trim:
 - 1. Comply with MSS SP-110.
 - 2. CWP Rating: 400 psig.
 - 3. CWP Rating: 600 psig.
 - 4. Body: Forged brass.
 - 5. Ends: Threaded.
 - 6. Seats: PTFE.
 - 7. Stem: Brass.

8. Ball: Chrome-plated brass.

2.5 BRONZE BALL VALVES

- A. One Piece, Reduced Port with Bronze Trim:
 1. Comply with MSS SP-110.
 2. SWP Rating: 400 psig.
 3. CWP Rating: 600 psig.
 4. Body: Bronze.
 5. Ends: Threaded.
 6. Seats: PTFE.

2.6 BRONZE GLOBE VALVES

- A. Class 125: CWP Rating: 200 psig.
 1. Comply with MSS SP-80, Type 1.
 2. Body: ASTM B62, bronze with integral seat and screw-in bonnet.
 3. Ends: Threaded joint.
 4. Stem: Bronze.
 5. Disc: PTFE.
 6. Packing: Asbestos free.
 7. Handwheel: Malleable Iron.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.
- B. Verify valve parts to be fully operational in all positions from closed to fully open.
- C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.
- D. Should valve is determined to be defective, replace with new valve.

3.2 INSTALLATION

- A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.
- B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

END OF SECTION

SECTION 22 0529

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment components for equipment, piping, and other plumbing work.

1.2 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2019.
- D. MFMA-4 - Metal Framing Standards Publication 2004.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

- 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
- 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
- 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
- 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
- 5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

- 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03050.

1.4 QUALITY ASSURANCE

- A. Comply with applicable building code.

- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 25%. Include consideration for vibration, equipment operation, and shock loads where applicable.
 4. Do not use wire, chain, perforated pipe strap or wood for permanent supports unless specifically indicated or permitted.
 - a. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - b. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
 - c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Metal Channel (Strut) Framing Systems:
 1. Comply with MFMA-4.
 2. Channel Material:
 - a. Indoor Dry Locations: Use painted steel, zinc-plated steel or galvanized steel.
 3. Minimum Channel Thickness: Steel sheet, 12 gage, 0.1046 inch.
 4. Minimum Channel Dimensions: 1-5/8 inch width by 13/16 inch height.
- C. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- D. Anchors and Fasteners:
 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
 2. Concrete: Use preset concrete inserts, expansion anchors or screw anchors.
 3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
 4. Hollow Masonry: Use toggle bolts.

5. Hollow Stud Walls: Use toggle bolts.
6. Steel: Use beam clamps, machine bolts or welded threaded studs.
7. Sheet Metal: Use sheet metal screws.
8. Powder-actuated fasteners are permitted only as follows:
 - a. Where approved by Architect.
9. Preset Concrete Inserts: Continuous metal channel (strut) and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
 - a. Comply with MFMA-4.
 - b. Channel Material: Use galvanized steel.
 - c. Manufacturer: Same as manufacturer of metal channel (strut) framing system.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
- C. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- D. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- E. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- F. Equipment Support and Attachment:
 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

- G. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.
- H. Secure fasteners according to manufacturer's recommended torque settings.
- I. Remove temporary supports.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect support and attachment components for damage and defects.
- C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- D. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 22 0553
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tags.
- B. Pipe markers.

1.2 RELATED REQUIREMENTS

- A. Section 09900 – Paints and Coatings: Identification painting.

1.3 REFERENCE STANDARDS

- A. ASME A13.1 - Scheme for the Identification of Piping Systems 2015.

PART 2 PRODUCTS

2.1 IDENTIFICATION APPLICATIONS

- A. Piping: Tags.

2.2 TAGS

2.3 PIPE MARKERS

- A. Comply with ASME A13.1.

PART 3 EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.2 INSTALLATION

- A. Install plastic pipe markers in accordance with manufacturer's instructions.

END OF SECTION

SECTION 22 0719
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Piping insulation.
- B. Jackets and accessories.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 22 1005 - Plumbing Piping: Placement of hangers and hanger inserts.

1.3 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.
- B. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.7 FIELD CONDITIONS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.1 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

END OF SECTION

SECTION 22 0719.11

UNDER-LAVATORY PIPE AND SUPPLY COVERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Under-lavatory pipe and supply covers.

1.2 RELATED REQUIREMENTS

- A. Section 22 1005 - Plumbing Piping.

1.3 REFERENCE STANDARDS

- A. ABA Standards - ABA Accessibility Standards 2004 (Amended 2015).
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- C. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures 2011 (Reaffirmed 2017).
- D. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 2019.
- E. ASTM C1822 - Standard Specification for Insulating Covers on Accessible Lavatory Piping 2015.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.

1.4 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide catalog illustrations of covers, sizes, and finishes.
- C. Manufacturer's Instructions: Indicate installation methods and procedures.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.6 WARRANTY

- A. See Section 01001 - For additional warranty requirements.

PART 2 PRODUCTS

2.1 UNDER-LAVATORY PIPE and SUPPLY COVERS

- A. General:
 - 1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks per ADA Standards.
 - 2. Adhesives, sewing threads, and two-ply laminated materials are prohibited.
 - 3. Exterior Surfaces: Smooth nonabsorbent with no finger recessed indentations for easy cleaning.
 - 4. Construction: 1/8-inch PVC with antimicrobial, antifungal, and ultraviolet light (UV) resistant properties.
 - a. Provide one piece injected molded design with internal bridge at top of J-bend to prevent separating.
 - b. Comply with ASTM C1822 for covers on accessible lavatory piping.
 - c. Comply with ASME A112.18.9 for covers on accessible lavatory piping.
- B. ASTM E84 Compliant, Under-Lavatory Insulators:

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that walls, floor finishes, lavatories, and piping are prepared and ready for installation of under-lavatory guards.
- B. Confirm location and size of fixtures and piping before installation.

3.2 INSTALLATION

- A. Install under-lavatory guards according to manufacturer's written instructions.

3.3 CLEANING

- A. Clean installed under-lavatory guards.

3.4 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 22 1005

PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
 - 1. Sanitary sewer.
 - 2. Domestic water.
 - 3. Flanges, unions, and couplings.
 - 4. Pipe hangers and supports.
 - 5. Valves.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 08305 - Access Doors and Panels.
- C. Section 09900 – Paints and Coatings.
- D. Section 22 0553 - Identification for Plumbing Piping and Equipment.
- E. Section 22 0719 - Plumbing Piping Insulation.

1.3 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2018.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings 2018.
- C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV 2016.
- D. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV 2017.
- E. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings 1999, with Editorial Revision (2018).
- F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2018.
- G. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings 2017.
- H. ASTM B32 - Standard Specification for Solder Metal 2008 (Reapproved 2014).

- I. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes 2015a.
- J. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2016.
- K. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric) 2018.
- L. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube 2016.
- M. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings 2016.
- N. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings 2014.
- O. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018.
- P. MSS SP-67 - Butterfly Valves 2017.
- Q. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends 2010.
- R. NSF 61 - Drinking Water System Components - Health Effects 2019.
- S. NSF 372 - Drinking Water System Components - Lead Content 2016.

1.4 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturer's catalog information. Indicate valve data and ratings.
- C. Shop Drawings: For non-penetrating rooftop supports, submit detailed layout developed for this project, with design calculations for loadings and spacings.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.

- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

1.7 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.2 SANITARY SEWER PIPING, ABOVE GRADE

- A. Cast Iron Pipe: ASTM A74, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.
- B. Copper Pipe: ASTM B42.
 - 1. Fittings: ASME B16.23, cast copper, or ASME B16.29, wrought copper.
 - 2. Joints: ASTM B32, alloy Sn50 solder.

2.3 DOMESTIC WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
 - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
 - 2. Joints: ASTM B32, alloy Sn95 solder.

2.4 FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 3 Inches and Under:
 - 1. Ferrous pipe: Class 150 malleable iron threaded unions.
 - 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size Over 1 Inch:
 - 1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
 - 2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

2.5 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.

1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
3. Trapeze Hangers: Welded steel channel frames attached to structure.
4. Vertical Pipe Support: Steel riser clamp.

2.6 BALL VALVES

- A. Manufacturers:
 1. Apollo Valves; www.apollovalves.com.
 2. Nibco, Inc; www.nibco.com.
 3. Uponor, Inc; www.uponorengineering.com.
- B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

2.7 BUTTERFLY VALVES

- A. Manufacturers:
 1. Apollo Valves; www.apollovalves.com.
 2. Grinnell Products; B302: www.grinnell.com.
- B. Construction 1-1/2 Inches and Larger: MSS SP-67, 200 psi CWP, cast or ductile iron body, nickel-plated ductile iron disc, resilient replaceable EPDM seat, wafer ends, extended neck, 10 position lever handle.
- C. Provide gear operators for valves 8 inches and larger, and chain-wheel operators for valves mounted over 8 feet above floor.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

3.2 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- C. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

3.4 APPLICATION

- A. Use grooved mechanical couplings and fasteners only in accessible locations.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Install globe valves for throttling, bypass, or manual flow control services.

3.5 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed and clean.

END OF SECTION

SECTION 22 1006
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cleanouts.
- B. Mixing valves.

1.2 RELATED REQUIREMENTS

- A. Section 22 1005 - Plumbing Piping.
- B. Section 22 4000 - Plumbing Fixtures.

1.3 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. NSF 61 - Drinking Water System Components - Health Effects 2019.
- C. NSF 372 - Drinking Water System Components - Lead Content 2016.

1.4 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.
- D. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.
- E. Operation Data: Indicate frequency of treatment required for interceptors.
- F. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.
- G. Project Record Documents: Record actual locations of equipment, cleanouts, backflow preventers, water hammer arrestors.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.2 CLEANOUTS

- A. Manufacturers:
- B. Jay R. Smith Manufacturing Company; www.jayrsmith.com.
- C. Josam Company; www.josam.com.
- D. Zurn Industries, LLC; www.zurn.com.
- E. Cleanouts at Interior Finished Floor Areas (CO-3):
 - 1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.
- F. Cleanouts at Interior Finished Wall Areas (CO-4):
 - 1. Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless-steel access cover secured with machine screw.
- G. Cleanouts at Interior Unfinished Accessible Areas (CO-5): Calked or threaded type. Provide bolted stack cleanouts on vertical rainwater leaders.

2.3 MIXING VALVES

- A. Thermostatic Mixing Valves:
 - 1. Manufacturers:
 - a. Honeywell International Inc; www.honeywellhome.com.
 - b. Leonard Valve Company; www.leonardvalve.com.
 - 2. Valve: Chrome plated cast brass body, stainless steel or copper alloy bellows, integral temperature adjustment.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Install floor cleanouts at elevation to accommodate finished floor.
- D. Install air chambers on hot and cold water supply piping to each fixture or group of fixtures (each washroom). Fabricate same size as supply pipe or 3/4 inch minimum, and minimum 18 inches long.

END OF SECTION

SECTION 22 4000

PLUMBING FIXTURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Water closets.
- B. Lavatories.
- C. Electric water coolers.

1.2 RELATED REQUIREMENTS

- A. Section 22 1005 - Plumbing Piping.
- B. Section 22 1006 - Plumbing Piping Specialties.

1.3 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration. 2013.
- C. ASME A112.18.1 - Plumbing Supply Fittings 2018.
- D. ASME A112.19.2 - Ceramic Plumbing Fixtures 2018.
- E. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures 1994 (R2009).
- F. ASME A112.19.5 - Flush Valves and Spuds for Water Closets, Urinals, and Tanks 2017.
- G. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices 2015.
- H. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- I. NSF 61 - Drinking Water System Components - Health Effects 2019.
- J. NSF 372 - Drinking Water System Components - Lead Content 2016.
- K. UL (DIR) - Online Certifications Directory Current Edition.

1.4 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Manufacturer's Instructions: Indicate installation methods and procedures.
- D. Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01001 - Product Requirements, for additional provisions.
 - 2. Extra Lavatory Supply Fittings: One set of each type and size.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.7 WARRANTY

- A. See Section 01001 - For additional warranty requirements.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.
- B. Water Efficiency: EPA WaterSense label is required for all water closets, urinals, lavatory faucets, and showerheads.

2.2 REGULATORY REQUIREMENTS

- A. Comply with applicable codes for installation of plumbing systems.
- B. Comply with UL (DIR) requirements.

- C. Perform work in accordance with local health department regulations.
- D. Provide certificate of compliance from Authority Having Jurisdiction indicating approval of installation.

2.3 LAVATORIES/ sinks

- A. Lavatory/ sink Manufacturers:
 - 1. As indicated on plans.
- B. Supply Faucet Manufacturers:
 - 1. As indicated on plans.
- C. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with combination stop, strainer, and check valves, and flexible stainless-steel connectors.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.

3.2 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.3 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Install and secure fixtures in place with wall supports and bolts.
- E. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.

3.4 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.5 CLEANING

- A. Clean plumbing fixtures and equipment.

3.6 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.
- C. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 23 0000

MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Work under this section is subject to requirements of the Contract Documents, including General Conditions and Supplementary Conditions and applicable portions of Division 1 - General Requirements.

1.2 WORK INCLUDED

- A. The work of the Contract shall consist of furnishing all labor, tools, equipment, services, transportation and all items necessary to complete the Mechanical Trades Work as indicated on drawings and as described in the applicable Sections of the Specifications.
- B. The Drawings and Specifications shall be understood to cover according to their intent and meaning, complete operating systems as shown on the Drawings and specified under appropriate Sections of the Specifications.
- C. Items and accessories or devices necessary to the complete a proper operation of any system shall be provided by the Contractor and Subcontractor for such system whether or not they are specifically called for by the Specifications and Drawings.
- D. Additional work includes, but is not limited to the following:
 1. Site visit to examine the existing conditions that may affect the performance of the work specified.
 2. It shall be the responsibility of each mechanical contractor to field inspect this project, prior to submitting their bid.
 3. It shall be understood by submitting a base bid that any item required, even if not indicated in construction documents, to complete the intent of drawings and specifications, is included in base bid.
 4. No additional compensation shall be rendered to the contractor for any item if visual confirmation of discrepancy(s) can be made by field verification.
 5. Obtain and pay for all permits, licenses, approvals, reviews, utility shut-downs, tests and inspections.
 6. Pipe sleeves through floors, walls, and structural elements of the building, set in coordinated locations.
 7. All cutting, coring and patching of general construction as necessary for installation of the work specified. Smoke/fire stopping of all penetrations created by Mechanical and Plumbing contracts. Provide a 2-part minimum fire stopping system complying with fire department approved, UL listed details, which establish a smoke or fire resistance rating equal to or greater than the wall or floor penetrated.
 8. Provide demolition work as noted on the contract drawings.

- 9. Coordinated shop drawings and calculations; submit and obtain approval by the Architect and Engineer.
- 10. Clean-up, on a daily basis, of all debris associated with the installation of this work, as necessary to maintain the premises in a broom swept condition.
- 11. Testing, adjusting, retesting re-adjusting as may be required to obtain system acceptance by the Illinois Department of Public Health (IDPH), Owner's Insurance Underwriter, and Owner's Representative. Contractors shall remain responsible for their respective systems until all approvals are obtained.
- 12. Provide equipment manuals, record drawings, valve tag schedules, testing certificates and personnel instruction, prior to system turn-over to the Owner.

E. The work in this Division includes providing all labor, materials, specialty products, and services for, and reasonably incidental to, the satisfactory completion of the Mechanical, Plumbing, Fire Protection and/or Medical Gas systems, as indicated on the Contract Drawings, in the Specification Sections, and/or required by codes and referenced standards.

1.3 CODES AND REGULATIONS

A. The work under the Mechanical Sections shall comply with the latest edition of the applicable standards and codes of the following:

ASME	American Society of Mechanical Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ARI	Air Conditioning and Refrigeration Institute
ASTM	American Society for Testing Materials
AGA	American Gas Association
AWWA	American Water Works Association
TABIC	Testing & Balancing Institute for Certification.
IBR	Institute of Boiler & Radiator Manufacturers
ANSI	American National Standards Institute
UL	Underwriters Laboratories, Inc.
NEMA	National Electrical Manufacturer's Association
AWS	American Welding Society
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
OSHAO	Occupational Safety and Health Act
	Safety Standard Code Applying to the Trades per the Federal and State Agencies.
	Standard Specifications for Facilities for the Handicapped.
	Local and State Building Codes.
	Governing Federal Standards.

1.4 COORDINATION OF WORK BETWEEN VARIOUS TRADES

A. Each mechanical trade shall be responsible for obtaining information regarding the extent of work which is to be performed by the General Contractor, by other Mechanical trades and by the Electrical trades, and perform his contractual obligations in full coordination

with aforementioned trades. Prior to ordering of any mechanical equipment requiring electrical services, he shall verify current characteristics and other interrelated items with the Electrical trades and inform the Engineer in writing of any discrepancies he may discover. Claim for additional compensation will be denied due to failure to comply with the foregoing requirements.

1.5 SCHEDULING OF WORK

- A. Each mechanical trade will perform their work without affecting or disrupting normal building operations under any circumstances. Any shutdowns of systems or areas shall be done with authorization of building Engineering, and shall be done during periods the foregoing authorities deem most advantageous to building operations. In case of any authorized shut-down of any system, portion of system or areas, the contractor shall be fully responsible to provide immediate restoration of this system, portion of system or area into full service, if necessary.
- B. Contractor shall also coordinate their work with other mechanical, electrical and general trades in order not to cause any delays in project progress schedule.

1.6 DEFINITIONS AND INTERPRETATIONS

- A. Specific terminology used in the Drawings and Specifications shall have the following meanings;
 - 1. “Piping” includes pipe, fittings, flanges, valves, controls, hangers, supports, vents, drains and other customarily required items required in connection with the transfer of gases and fluids.
 - 2. “Install” includes unloading at the delivery point for the project and performing all tasks necessary to establish a secure mounting and correct operation, for items and assemblies furnished by other trades or the Owner.
 - 3. “Furnish” includes purchase and delivery to the project site, of items and assemblies, complete with necessary appurtenance.
 - 4. “Provide” shall mean “Furnish and Install”.
 - 5. “Concealed” when used in connection with the installation of piping, shall mean hidden from view behind chases, furred spaces, pipe shafts, or above suspended ceilings.
 - 6. “Contractor” shall mean the Mechanical and Plumbing Contractors and their vendors, fabricators or subcontractors.
 - 7. “Design Drawings” or “Contract Documents” shall mean documents, including drawings and written specifications, prepared by the Architects and Engineers, to obtain building permits and competitive bid proposals from contractors, for construction of the specified mechanical and plumbing systems.
 - 8. “Shop Drawings” shall mean documents, including calculations, drawings and material specifications prepared by the Mechanical and Plumbing Contractors, obtaining approval from the authority having jurisdiction, Owner’s Insurance Underwriter, Architect/Engineer.
 - 9. “NPS” shall mean nominal pipe size.

- B. The following are industry abbreviations for plastic materials:
 - 1. PVC: Polyvinyl chloride plastic.
- C. The following are industry abbreviations for rubber materials:
 - 1. EPDM: Ethylene-propylene-diene terpolymer rubber.
 - 2. NBR: Acrylonitrile-butadiene rubber.
- D. The use of the Design Drawings and Specifications by the contractor, for Bid Proposal and Working Drawing preparation, shall include the following understanding:
 - 1. The information included in the drawings and specifications is given as a guide only, to indicate general feasibility and to show an acceptable arrangement of systems, system zones, piping ductwork and equipment.
 - 2. The design drawings utilize symbols and diagrams to indicate required work, representing only the sequence of items to be installed, which have no dimensional significance and do not indicate every required item to be provided. The work shall be installed in accordance with the diagrammatic intent expressed on the drawings, in conformity with the dimensions indicated on the final architectural and structural working drawings, and final equipment shop drawings. Information regarding general construction shall be derived only from the architectural and structural drawings and specifications.
 - 3. The drawings and specifications are complementary and are to be utilized together for a complete interpretation of the work intended. The higher capacity or standard shall be provided, where conflicts between the drawings and specifications, or conflicts within themselves, occur.
 - 4. The limitations of the language used on the drawings and specifications shall not be interpreted as meaning that accessories and appurtenances, required for completion of work, are to be excluded. The description of any item, on the drawings or in the specifications or both, requires the installation of all its necessary components for approved, satisfactory operation.
 - 5. Submission of a bid proposal requires the contractor to review all project documents and visit the construction site, to be thoroughly familiar with all requirements for the project, and identify in his bid, conditions that may affect the efficient and satisfactory performance of the work. Claims for additional compensation shall be denied if the above procedures are not followed and the disputed conditions would have been identified by the completion of these required tasks.
 - 6. The information shown on the design drawings and written in the specifications shall not be interpreted as to instruct the contractor to not follow the applicable codes or local amendments. Where the information provided for guidance is believed not to be in conformance with the code requirements and referenced standards, the contractor shall notify the Architect and Engineer for clarification prior to the submission of his bid proposal.

1.7 DRAWINGS AND SPECIFICATIONS

- A. Each Mechanical trade shall be responsible for obtaining information regarding any and all peculiarities and limitations of spaces available for installation of all materials and

work furnished and installed under this Contract. Although the location of equipment may be shown on the drawings in certain positions, each mechanical trade shall be guided by the Architectural details, conditions of the job, correlating his work with that of other sections.

- B. The Drawings for this work accompanying these Specifications are to be considered as important and integral parts of same, and anything omitted from one and embodied in the other is to be considered as essential to the requirement of the Contract and must be furnished and installed by the Contractor. The Drawings indicate required size and points of termination of piping and ducts, and suggest proper routes of piping and ducts to conform to structures avoid obstruction and preserve clearances. However, it is not the intention of the Drawings to indicate all necessary offsets, and it shall be the responsibility of each trade to install piping and ductwork in such a manner as to preserve head room and keep all openings and passageways clear without further construction or cost.
- C. It is intended that apparatus shall be located symmetrically with architectural elements, not notwithstanding the fact that locations indicated on the Drawings may be distorted for clearness in presentation.

1.8 INTENT OF MECHANICAL DRAWINGS

- A. The Mechanical drawings shall serve as working drawings for the general layout of the various items of equipment. However, layout of equipment, accessories, specialties, ductwork, and piping systems, are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required valve, fitting, trap, duct, elbow, transition, turning vane, switch, damper, etc. necessary to conform to project conditions.

1.9 SUBMITTALS

- A. Drawings have been prepared utilizing AutoCAD, however contractor is not to consider these documents fully coordinated drawings and is required to prepare their own fully coordinated with all trades, drawings for submission. Contractor shall not fabricate, purchase or install until they have prepared, submitted and received approved shop drawings. There will be no exceptions.
- B. Submit under provisions of Section 01001.
- C. Shop Drawings submittal shall have a coordination sign-off signature from all disciplines.
- D. No material or equipment shall be purchased or installed without approved submittal.
- E. Mechanical and Plumbing contractors shall obtain written approval from electrical contractor on product submittals.
- F. "As-Built" drawings shall include all the revisions done during the construction period.
- G. Electronic Equipment Submittals

1. Electronic submittals are preferred, but hard copy submittals will be accepted for review.
2. Electronic submittals shall consist of pertinent information only, so as to minimize size of electronic files. Information that is not specific to the project will not be reviewed.
3. Each category of product shall be submitted individually and shall be submitted in a separate email.
4. Provide cover sheet with space for engineers stamp.
5. Provide transmittal sheet (attached to shop drawing) indicating section, title, and tag number as per table of contents of these specifications.
6. Shop drawings larger than 1 mb shall not be submitted by email.
7. Installation manuals shall be distributed through the contractor and shall not be submitted for engineers review.
8. Operation and maintenance manuals shall be submitted with project close out documents.

H. Such submittals shall contain outline dimensions, operating and maintenance clearances and sufficient engineering data to indicate compliance with Specifications. Each submittal shall be clearly labeled with:

1. Name of the job.
2. Contractor's name and trade.
3. The function of the item on which approval is required.
4. Manufacturer's name.
5. Subcontractor's name (if any).
6. Number of specification that item is being submitted under (i.e., Section 23 3416-2.08-A-4).

I. Shop Drawings covering work to be performed by Subcontract, or material or equipment to be delivered to site by manufacturer shall bear stamped or written evidence that:

1. Contractor has inspected such Drawings, cuts or schedules.
2. Material or equipment covered will meet Specification requirements.
3. Material or equipment will fit properly in the building and with work of other trades.
4. Each item is complete or that the missing elements have been provided from another source.

J. Detailed dimensioned shop drawings for the installation of the work shall be prepared and submitted for review by the Engineer. These drawings shall be new drawings and not reproduced from the Engineer's drawings.

K. In preparation of shop drawings, contractor may, at his option, obtain from the engineer electronic drawing files in AutoCAD format on a CD-ROM disk for shipping and handling fee of \$150.00 per request. Contractor shall contact the architect and engineer for written authorization and necessary release authorization form and to specify shipping method. In addition to payment, architect's written authorization and engineer's release agreement form must be received before the electronic drawing files will be sent.

- L. Shop Drawings shall be drawn to a minimum scale of 1/8" = 1'-0", showing all equipment; with Mechanical Rooms to a minimum scale of 1/4" = 1'-0, showing all equipment, ductwork and piping to be installed under the Mechanical Sections. For critical areas, provide section drawings to a minimum scale of 1/4" = 1'-0". Layouts shall show clearances of piping, ducts, etc., above floor. SHOP DRAWINGS SHALL BE REVIEWED AND SIGNED OFF BY ALL OTHER TRADES BEFORE SUBMITTAL. Any installation of equipment/material without approved shop drawings is prohibited.
- M. Manufacturers' data sheets shall be submitted indicating the necessary installation dimensions, weights, materials and performance information. The performance shall include capacities, RPM, BHP, pressure drop, design and operating pressure, temperatures, acoustical performance, and similar data. Complete electrical data, including power conditions and identifying types and numbers, shall be included. Where pertinent, electrical diagrams and/or control diagrams shall be provided.
- N. Review of Shop Drawings is rendered as a service only, and shall not be considered as a guarantee of measurements or building conditions, nor shall it be construed as relieving the Contractor of basic responsibility under the Contract.

1.10 SUBSTITUTIONS

- A. Architect/Engineer will consider requests for substitutions for products made during the bidding period by submitting completed substitution request form a minimum of 10 days prior to Bid Date. Those submitted ten days prior to Bid Date will be included in an addendum if acceptable. Any substitutions not submitted at least ten (10) days prior to bid date will be rejected.
- B. Substitutes may be considered after the end of the bidding period, in case of product unavailability or other conditions beyond the control of Contractor.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Support each request as follows:
 - 1. Identify product by Specifications section and Article numbers.
 - 2. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description
 - 2) Reference standards
 - 3) Performance and test data.
 - c. Samples, as applicable.
 - d. Name and address of similar projects on which product has been used, and date of each installation.
 - 3. Provide itemized comparison of the proposed substitution with product specified; list significant variations.
 - 4. Data relating to changes in construction schedule.
 - 5. Any effect of substitution on separate contracts.

- 6. List of changes required in other work or products.
- 7. Accurate cost data comparing proposed substitution with product specified.
 - a. Amount of any net change to Contract Sum.
- 8. Designation of availability of maintenance services, sources of replacement materials.

D. A request constitutes a representation that the Bidder and/or Contractor:

- 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
- 2. Will provide the same warranty for the Substitution as for the specified product.
- 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
- 4. Waives claims for additional costs or time extension which may subsequently become apparent.
- 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals; without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

- 1. Submit three copies of Request for Substitution for consideration. Limit each request to one proposed Substitution.
- 2. Submit shop drawings, Product data, and certified test results attesting to the proposed Product equivalence.
- 3. The Architect/Engineer will notify Contractor, in writing, of decision to accept or reject request.

1.11 RECORD DRAWINGS

- A. The Contractor shall submit letter of certification with pay request indicating that the record drawings on site are up to date and reflect true "as-built" conditions at that time. No pay request will be approved without this letter.
- B. The Contractor or Subcontractor shall keep at the project site one complete set of the Contract Working Drawings on which he shall record any deviations or changes from such Drawings made during construction. Record Drawings shall show change in size, type, capacity, etc., or material, device or piece of equipment, location of any outlet or source in building service system, rerouting any piping, sewers or other building services.
- C. These Drawings shall also record the location of all concealed services, piping, sewers, wastes, vents and other equipment by indication of measured dimensions to each such line from readily identifiable and accessible walls or corners of the building. Drawings shall show invert elevations of sewers and top of water mains, runs, gas services, etc.

- D. After the project is completed, three copies of these Drawings shall be delivered to the Owner in good condition as a permanent record of the installation as actually constructed, as a precedent to final payment.

1.12 STANDARDS FOR MATERIAL WORKMANSHIP

- A. Workmanship shall be in accordance with Division 1.
- B. All materials shall be new and shall conform to the standards of the Underwriters' Laboratories, Inc., in every case where such standards have been established for the particular material in question. All work shall present a neat, mechanical appearance when completed.
- C. Materials, the style, make or quality of which is specifically designated, shall be as specified. Should any substitution of material or item of equipment or apparatus be made, the Engineer's written approval must be obtained prior to installation.
- D. Furnish necessary materials in ample quantities and as frequently to avoid delay in the progress of the work, and so store them as to prevent interference with other work.
- E. All piping and ductwork shall be run parallel to lines of the building unless otherwise distinctly shown or noted in the Drawings.
- F. Heating, piping, air conditioning and ventilation ducts, shall be concealed.
- G. Hangers for all piping shall be clevis or split ring type, unless otherwise specified or indicated, with provision for vertical adjustments, except that hangers supporting copper tubing shall be copper or bronze. Hangers shall be supported from rods fastened to building construction. Wire or perforated strap iron will not be permitted.
- H. Where head room requirements or physical space limitations necessitate, consideration shall be given to altering of building structural elements such as penetrating beams, webs, notching of joists, etc., which shall be kept to an absolute minimum, and shall be done only after written permission is issued by the Architect and/or Structural Engineer. Any damage done to structural or architectural elements shall be restored and/or repaired to the satisfaction of the Engineer at the expense of the installer. Refer to Section 01045 Cutting and Patching.
- I. All piping, equipment, devices, ducts, hangers, etc., shall be securely and permanently hung from supporting walls, roof or floor construction etc., in a manner satisfactory to the Architect and Engineer.
- J. All material or work found to be defective or not in strict conformity with the Drawings or different from the requirements of the Drawings and Specifications, or defaced or injured through negligence of the Contractor or his employees, or through the action of fire or weather or any other cause, will be rejected and shall be immediately removed from the premises by the Contractor and satisfactory material and work substituted therein without delay.

K. Any defective material or work which may be discovered shall be corrected immediately on notice from the Engineer. No previous inspection or certificate on account shall be held to relieve the Contractor from his obligation to furnish sound material and to perform good and satisfactory work.

1.13 MANUFACTURER'S NAMEPLATES

A. Each major component of equipment shall have the manufacturer's name, address, model number and rating on a plate securely affixed in a conspicuous place. The nameplate of a distributing agent will not be acceptable. ASME Code Ratings or other data which are die-stamped into the surface of the equipment shall be stamped in an easily visible location.

1.14 LINES AND LEVELS

A. Each Mechanical Contractor shall be responsible for the lines and levels of the ductwork and piping, lighting fixtures, panels and conduit, based on reference lines and bench marks established by the Contractor for the general work.

1.15 RULES AND REGULATIONS

A. All workmanship and materials shall conform to the requirements of the building and ordinances and rules and regulations of all departments and bureaus of the County, City and State having lawful jurisdiction, irrespective of any statements herein to the contrary.

1.16 ORDINANCES

A. The work shall be in accordance with the governing State and Local ordinances, codes and regulations; including fire rating and inspection bureaus and the N.F.P.A. regulation, all of which are hereby made a part of these Specifications.

1.17 GUARANTEES

A. The Contractor shall guarantee all work performed and materials and equipment furnished under the contract, against defects in materials and workmanship, for a period of one year from the date of substantial completion of the work, in accordance with Section "General Conditions". Repairs or replacements made under the guarantee shall bear an additional twelve (12) month guarantee from date of repair or replacement. Provide all service necessary and incidental to the proper performance of the system for a period of one (1) year from the date of substantial completion of the contract at no additional charge to the Owner.

B. Each Mechanical Trade shall submit product warranties on all equipment and include all extended warranties beyond one year and identify them with specification section number and equipment identification number.

1.18 HOUSEKEEPING

- A. Each Mechanical trade shall be responsible for keeping stocks of materials and equipment stored on the premises in a neat and orderly manner.
- B. Each Mechanical trade shall clean and maintain its portion of the work as specified.
- C. The exposed surfaces of piping, ductwork or equipment which have become covered with dirt, plaster, or other material during handling and construction shall be thoroughly cleaned by the erecting trade before such surfaces are covered with insulation, prepared for painting, or enclosed within the building structure.

1.19 QUALITY ASSURANCE

- A. All materials, specialty products, equipment, methods of installation, and the application of materials and products in specific situations, shall be in strict accordance with the applicable requirements of Chicago Code and referenced standards, and have the prior approval of the authority having jurisdiction. All materials and equipment shall be UL labeled, and installed in accordance with their listing.
- B. Delete first paragraph below if no welding. AWS states that welding qualifications remain in effect indefinitely unless welding personnel have not welded for more than six months or there is a specific reason to question their ability.
- C. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
- D. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
 - 1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
 - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- E. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.20 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and protect materials and equipment under provisions of Division 01.
- B. Each Mechanical trade shall keep all its respective pipe and duct openings closed by means of plugs or caps to prevent the entrance of foreign matter, and cover all fixtures, equipment and apparatus to protect them against dirt, water, chemical or mechanical damage both before and after installation.
- C. Any such fixtures, equipment or apparatus damaged prior to final acceptance of the work shall be restored to its original condition or replaced by the respective Mechanical trade.

- D. Any fixtures, equipment or apparatus delivered to the project and stored on the project exposed to the weather, shall be completely covered with minimum 6 mil white polyethylene sheets.

1.21 ACCESS PANELS

- A. Ceiling, duct chase, and pipe chase access panels will be installed by General Contractor where indicated and for access to valves, dampers, apparatus, etc. Where in the opinion of the respective Mechanical trades, access panels are required, but are not shown on the drawings, their omission shall be brought to the attention of the Architect/ Engineer, and coordinated with other trades for quantity, size, location and installation of additional panels as approved by the Architect/Engineer.

1.22 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Coordinate requirements for access panels and doors for mechanical items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors and Frames."

1.23 CHANGE PROPOSAL REQUESTS

- A. All Change Proposal Requests for work additional to the base bid contract shall be based on material, labor, overhead and profit costs as published in the latest edition of "Means Mechanical, Electrical, Plumbing, and Building Construction Cost Data". All change requests must be broken down in the following manor:
Material cost: (i.e. Equipment, sheet metal per pound and piping per lineal foot/fitting).
Labor cost: (Number of hours at current labor rate per hour)
Overhead and profit: (Indicating percentages)
Total change order price: (Material + labor = O&P)
Pricing for all items of work which are to be credited to the project shall be broken down in a similar manner to the added costs.
The associated cost for drafting changes (including three-dimensional modeling) shall not exceed 10% of the cost of material and labor for the change.

1.24 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. Furnish to the Owner three (3) manuals covering model, type, serial numbers, capacities, flow, operation and maintenance of each major item of equipment or apparatus.
Operation instructions shall cover all phases of control.
- B. The operation and maintenance instructions shall contain the following minimum items:

1. Flow sheets showing sizes and quantities of all systems, including shut-off valves, centrifugal pumps, fans, air handling equipment, control valves, filters, etc.
2. Flow sheets of all automatic controls showing automatic controls superimposed on physical systems, and showing devices which require manual resetting.
3. Maintenance and operation instructions inclusive of maintenance and operation instructions furnished by the manufacturers.
4. For each section of the specification as applicable, furnish a competent engineer or qualified supervisor for a period of not less than one (1) day to instruct representatives of the Owner in the operation and routine maintenance of the equipment included.

1.25 FINAL PAYMENT

- A. Final payment shall be withheld until all items of deficiency are corrected and accepted, and complete sets of reproducible "as-built" record drawings are received from each subcontractor for their work.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.1 INSTALLATION

- A. Give careful consideration to clearances under beams, over windows, etc., to provide maximum headroom in all cases, and to the locations of lines and type of fittings used to obtain these clearances. Ascertain from the drawings the heights of all suspended ceilings and the size of all shafts in which piping and ductwork is to be concealed, and the location and size of structural members in and adjacent to all shafts. Coordinate the piping, ductwork and lighting trades with each other, and with all other equipment. In any case, where insufficient room is provided for piping above suspended ceilings, or in vertical shafts, obtain clarification from the Engineer before any work is installed.
- B. Fabricate pipe and ductwork accurately to measurements established at the building, work into place without springing or forcing, and properly clear all windows, doors and other openings. Cutting or other weakening of the building structure to facilitate piping and ductwork installation will not be permitted unless approved by the Engineer.

3.2 LOCATION OF EQUIPMENT AND DEVICES

- A. Locations of mechanical equipment and devices are approximate. Where equipment and devices are exposed to public view the exact locations are as shown on the Architectural drawings, approved coordination drawings, approved shop drawings, and as installed in the approved mock-up. In all cases, consult with the Architect when the exact location is in doubt.
- B. Relocate equipment or devices when directed by Architect/Engineer without cost, providing new location is not greater than 20 feet from original location shown.

3.3 CONTRACTOR'S NOTES

- A. Refer to architectural documents for exact locations of walls and ceiling type/outlets. Provide necessary labor, material and engineering, etc. to accommodate necessary adjustments to mechanical systems.
- B. Commissioning of the systems shall meet the functional criteria and satisfaction of the Owner.

END OF SECTION

SECTION 23 0517

SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pipe sleeves.
- B. Manufactured sleeve-seal systems.

1.2 RELATED REQUIREMENTS

- A. Section 23 0719 - HVAC Piping Insulation.

1.3 REFERENCE STANDARDS

- A. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type) 2016.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems 2013a (Reapproved 2017).

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.5 WARRANTY

- A. See Section 01001 - For additional warranty requirements.

PART 2 PRODUCTS

2.1 PIPE SLEEVES

- A. Manufacturers:
 - 1. Flexicraft Industries; Pipe Wall Sleeve: www.flexicraft.com/#sle.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.

- B. Install piping to conserve building space, to not interfere with use of space and other work.
- C. Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- D. Provide sleeves when penetrating. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
- E. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

END OF SECTION

SECTION 22 0523

GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Applications.
- B. General requirements.
- C. Ball valves.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 22 0553 - Identification for Plumbing Piping and Equipment.
- C. Section 22 0719 - Plumbing Piping Insulation.
- D. Section 22 1005 - Plumbing Piping.

1.3 REFERENCE STANDARDS

- A. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves 2017.
- B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2018.
- C. ASME B16.34 - Valves - Flanged, Threaded and Welding End 2017.
- D. ASME BPVC-IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators - Welding Brazing and Fusing Qualifications 2019.
- E. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings 2017.
- F. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves 2013.
- G. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends 2010.

1.4 SUBMITTALS

- A. See Section 01001 - Submittals, for submittal procedures.

- B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.
- E. Maintenance Materials: Furnish Owner with one wrench for every five plug valves, in each size of square plug valve head.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.5 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Obtain valves for each valve type from single manufacturer.
 - 2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Welding Materials and Procedures: Comply with ASME BPVC-IX.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
 - 2. Protect valve parts exposed to piped medium against rust and corrosion.
 - 3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
 - 4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.
 - 5. Secure check valves in either the closed position or open position.
 - 6. Adjust butterfly valves to closed or partially closed position.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection and protect flanges and specialties from dirt.
 - a. Provide temporary inlet and outlet caps.
 - b. Maintain caps in place until installation.
 - 2. Store valves in shipping containers and maintain in place until installation.
 - a. Store valves indoors in dry environment.
 - b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

PART 2 PRODUCTS

2.1 APPLICATIONS

- A. Provide the following valves for the applications if not indicated on drawings:
 - 1. Shutoff: Ball, butterfly, gate.
- B. Domestic, Hot and Cold Water Valves:
 - 1. 2 NPS and Smaller:
 - a. Bronze and Brass: Provide with solder-joint ends.
 - b. Bronze Angle: Class 125, bronze disc.
 - c. Ball: One piece, full port, brass with brass trim.
 - d. Bronze Swing Check: Class 125, bronze disc.
 - e. Bronze Gate: Class 125, NRS.
 - f. Bronze Globe: Class 125, bronze disc.

2.2 GENERAL REQUIREMENTS

- A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.
- B. Valve Sizes: Match upstream piping unless otherwise indicated.
- C. Valve Actuator Types:
- D. Valve-End Connections:
- E. General ASME Compliance:
 - 1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.
 - 2. Solder-joint Connections: ASME B16.18.

2.3 BRONZE ANGLE VALVES

- A. Class 125: CWP Rating: 200 psig.:
 - 1. Comply with MSS SP-80, Type 1.
 - 2. Body: Bronze; ASTM B62, with integral seat and screw in bonnet.
 - 3. Ends: Threaded.
 - 4. Stem: Bronze.
 - 5. Disc: Bronze.
 - 6. Packing: Asbestos free.
 - 7. Handwheel: Bronze or aluminum.

2.4 BRASS BALL VALVES

- A. One-Piece, Reduced-Port with Brass Trim:
 - 1. Comply with MSS SP-110.
 - 2. CWP Rating: 400 psig.
 - 3. CWP Rating: 600 psig.
 - 4. Body: Forged brass.
 - 5. Ends: Threaded.
 - 6. Seats: PTFE.
 - 7. Stem: Brass.

8. Ball: Chrome-plated brass.

2.5 BRONZE BALL VALVES

- A. One Piece, Reduced Port with Bronze Trim:
 1. Comply with MSS SP-110.
 2. SWP Rating: 400 psig.
 3. CWP Rating: 600 psig.
 4. Body: Bronze.
 5. Ends: Threaded.
 6. Seats: PTFE.

2.6 BRONZE GLOBE VALVES

- A. Class 125: CWP Rating: 200 psig.
 1. Comply with MSS SP-80, Type 1.
 2. Body: ASTM B62, bronze with integral seat and screw-in bonnet.
 3. Ends: Threaded joint.
 4. Stem: Bronze.
 5. Disc: PTFE.
 6. Packing: Asbestos free.
 7. Handwheel: Malleable Iron.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.
- B. Verify valve parts to be fully operational in all positions from closed to fully open.
- C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.
- D. Should valve is determined to be defective, replace with new valve.

3.2 INSTALLATION

- A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.
- B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

END OF SECTION

SECTION 23 0529

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment components for equipment, piping, and other HVAC/hydronic work.

1.2 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2019.
- D. MFMA-4 - Metal Framing Standards Publication 2004.

1.3 QUALITY ASSURANCE

- A. Comply with applicable building code.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Installer Qualifications for Powder-Actuated Fasteners (when specified): Certified by fastener system manufacturer with current operator's license.

PART 2 PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:

- 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
- 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
- 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.

4. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
5. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
 - a. Comply with MFMA-4.

B. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.

C. Anchors and Fasteners:

1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

END OF SECTION

SECTION 23 0553
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Nameplates.
- B. Tags.
- C. Adhesive-backed duct markers.
- D. Stencils.
- E. Pipe markers.
- F. Ceiling tacks.

1.2 RELATED REQUIREMENTS

- A. Section 09900 – Paints and Coatings: Identification painting.

1.3 REFERENCE STANDARDS

- A. ASME A13.1 - Scheme for the Identification of Piping Systems 2015.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials 2017.

PART 2 PRODUCTS

2.1 IDENTIFICATION APPLICATIONS

- A. Air Handling Units: Nameplates.
- B. Automatic Controls: Tags. Key to control schematic.
- C. Dampers: Ceiling tacks, where located above lay-in ceiling.
- D. Ductwork: Nameplates.
- E. Heat Transfer Equipment: Nameplates.
- F. Thermostats: Nameplates.
- G. Valves: Tags and ceiling tacks where located above lay-in ceiling.

2.2 NAMEPLATES

- A. Manufacturers:
 - 1. Advanced Graphic Engraving, LLC: www.advancedgraphicengraving.com.
 - 2. Brimar Industries, Inc: www.pipemarker.com.
 - 3. Craftmark Pipe Markers: www.craftmarkid.com.
- B. Letter Color: White.
- C. Letter Height: 1/4 inch.

2.3 TAGS

- A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- B. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- C. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

2.4 ADHESIVE-BACKED DUCT MARKERS

- A. Manufacturers:
 - 1. Brimar Industries, Inc: www.pipemarker.com/#sle.
 - 2. Craftmark Pipe Markers: www.craftmarkid.com/#sle.
- B. Style: Individual Label.

2.5 STENCILS

- A. Stencils: With clean cut symbols and letters of following size:
 - 1. 3/4 to 1-1/4 inch Outside Diameter of Insulation or Pipe: 8-inch-long color field, 1/2 inch high letters.
 - 2. 1-1/2 to 2 inch Outside Diameter of Insulation or Pipe: 8-inch-long color field, 3/4 inch high letters.

2.6 PIPE MARKERS

- A. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- B. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

2.7 CEILING TACKS

- A. Description: Steel with 3/4 inch diameter color coded head.

PART 3 EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.2 INSTALLATION

- A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.

END OF SECTION

SECTION 23 0593

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Testing, adjustment, and balancing of air systems.
- B. Testing, adjustment, and balancing of hydronic, steam and refrigerating systems.
- C. Field quality-control testing of Laboratory fume hoods.
- D. Measurement of final operating condition of HVAC systems.

1.2 REFERENCE STANDARDS

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition 2016.
- B. ASHRAE Std 110 - Methods of Testing Performance of Laboratory Fume Hoods 2016.
- C. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems 2008 (Reaffirmed 2017).
- D. NEBB (TAB) - Procedural Standards for Testing Adjusting and Balancing of Environmental Systems 2015, with Errata (2017).
- E. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing 2002.

1.3 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Installer Qualifications: Submit name of adjusting and balancing agency and TAB supervisor for approval within 30 days after award of Contract.
- C. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
 1. Include at least the following in the plan:
 - a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
 - b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.

- c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
- d. Final test report forms to be used.
- e. Procedures for formal deficiency reports, including scope, frequency and distribution.

D. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

1. Revise TAB plan to reflect actual procedures and submit as part of final report.
2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect and for inclusion in operating and maintenance manuals.
3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Perform total system balance in accordance with one of the following:
 1. AABC (NSTSB), AABC National Standards for Total System Balance.
 2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
 3. SMACNA (TAB).
- B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- C. TAB Agency Qualifications:
 1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.

3.2 AIR SYSTEM PROCEDURE

- A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.
- B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross-sectional area of duct.
- C. Measure air quantities at air inlets and outlets.

- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

END OF SECTION

SECTION 23 0713

DUCT INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Duct insulation.

1.2 REFERENCE STANDARDS

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- D. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications 2013 (Reapproved 2019).
- E. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation 2014 (Reapproved 2019).
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.
- G. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2005 (Revised 2009).
- H. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

PART 2 PRODUCTS

2.1 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.2 GLASS FIBER, FLEXIBLE

- A. Manufacturer:

- 1. CertainTeed Corporation: www.certainteed.com Johns Manville: www.jm.com.

2. Knauf Insulation; Atmosphere Duct Wrap: www.knaufinsulation.com.
3. Owens Corning Corporation: www.ocbuildingspec.com.

B. Insulation: ASTM C553; flexible, noncombustible blanket.

1. K value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.

2.3 GLASS FIBER, RIGID

A. Manufacturer:

1. CertainTeed Corporation: www.certainteed.com.
2. Johns Manville: www.jm.com.
3. Knauf Insulation: www.knaufinsulation.com.
4. Owens Corning Corporation; 700 Series FIBERGLAS Insulation: www.ocbuildingspec.com.

B. Insulation: ASTM C612; rigid, noncombustible blanket.

1. K Value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
2. Maximum Service Temperature: 450 degrees F.
3. Maximum Water Vapor Absorption: 5.0 percent.
4. Maximum Density: 8.0 lb/cu ft.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that ducts have been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Insulated ducts conveying air below ambient temperature:
 1. Provide insulation with vapor barrier jackets.
 2. Finish with tape and vapor barrier jacket.
 3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
 4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- D. Insulated ducts conveying air above ambient temperature:
 1. Provide with or without standard vapor barrier jacket.
 2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

3.3 SCHEDULES

A. Supply Ducts:

1. Flexible glass fiber 2" thick.

END OF SECTION

SECTION 23 0719
HVAC PIPING INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Piping insulation.
- B. Flexible removable and reusable blanket insulation.
- C. Jackets and accessories.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

- A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 2019.
- B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- C. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form 2016.
- D. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation 2019.
- E. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation 2017, with Editorial Revision (2018).
- F. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications 2013 (Reapproved 2019).
- G. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel 2008 (Reapproved 2018).
- H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.
- I. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.6 FIELD CONDITIONS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.1 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.2 GLASS FIBER, FLEXIBLE

- A. Manufacturer:
- B. Insulation: ASTM C553; flexible, noncombustible blanket.
 - 1. K Value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.
 - 2. Maximum Service Temperature: 1200 degrees F.
 - 3. Maximum Water Vapor Absorption: 5.0 percent by weight.
- C. Vapor Barrier Jacket:
 - 1. Kraft paper with glass fiber yarn and bonded to aluminized film.

2.3 GLASS FIBER, RIGID

- A. Manufacturers:
 - 1. CertainTeed Corporation: www.certainteed.com.
 - 2. Johns Manville Corporation: www.jm.com.
 - 3. Knauf Insulation; Earthwool 1000 Degree Pipe Insulation: www.knaufinsulation.com.
 - 4. Owens Corning Corporation; Fiberglas Pipe Insulation ASJ: www.ocbuildingspec.com.
- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
 - 1. K Value: ASTM C177, 0.24 at 75 degrees F.
 - 2. Maximum Service Temperature: 850 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible, with wicking material to transport condensed water to the outside of the system for evaporation to the atmosphere.

1. K Value: ASTM C177, 0.23 at 75 degrees F.
2. Maximum Service Temperature: 220 degrees F.
3. Maximum Moisture Absorption: 0.2 percent by volume.

2.4 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

- A. Manufacturer:
 1. Aeroflex USA, Inc; Aerocel ULP: www.aeroflexusa.com.
 2. Armacell LLC; AP Armaflex: www.armacell.us.
- B. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.
 1. Minimum Service Temperature: Minus 40 degrees F.
 2. Maximum Service Temperature: 180 degrees F.
 3. Connection: Waterproof vapor barrier adhesive.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature; insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- E. Glass fiber insulated pipes conveying fluids below ambient temperature:
 1. Provide vapor barrier jackets, factory-applied or field-applied; secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.

- G. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
- H. Glass fiber insulated pipes conveying fluids above ambient temperature.
 - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
 - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- I. Inserts and Shields:
 - 1. Application: Piping 1-1/2 inches diameter or larger.
 - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.

END OF SECTION

SECTION 23 3100
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal ductwork.
- B. REFERENCE STANDARDS
- C. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals Most Recent Edition Cited by Referring Code or Reference Standard.
- D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2014.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2019a.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable 2018.
- G. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2018.
- H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2005 (Revised 2009).

PART 2 PRODUCTS

2.1 DUCT ASSEMBLIES

- A. Regulatory Requirements: Construct ductwork to comply with NFPA 90A standards.
- B. Low Pressure Supply (System with Cooling Coils): 1/2-inch w.g. pressure class, galvanized steel.

2.2 MATERIALS

- A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
- B. Un-Galvanized Steel for Ducts: ASTM A1008/A1008M Designation CS (commercial steel), cold-rolled.

2.3 DUCTWORK FABRICATION

- A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.
- B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
- C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
- D. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

2.4 MANUFACTURED DUCTWORK AND FITTINGS

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install, support, and seal ducts in accordance with SMACNA (DCS).
- B. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- C. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

END OF SECTION

SECTION 23 3300

AIR DUCT ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Air turning devices/extractors.
- B. Backdraft dampers - metal.
- C. Duct access doors.
- D. Fire dampers.
- E. Flexible duct connectors.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 23 3100 - HVAC Ducts and Casings.

1.3 REFERENCE STANDARDS

- A. AMCA 500-D - Laboratory Methods of Testing Dampers for Rating 2018.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.
- C. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2018.
- D. NFPA 92 - Standard for Smoke Control Systems 2018.
- E. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations 2017.
- F. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2005 (Revised 2009).

PART 2 PRODUCTS

2.1 AIR TURNING DEVICES/EXTRACTORS

- A. Manufacturers: McMaster- Carr or equal.

2.2 DUCT ACCESS DOORS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.

2.3 FLEXIBLE DUCT CONNECTORS

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). Refer to Section 23 31 00 for duct construction and pressure class.
- B. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- C. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.

END OF SECTION

SECTION 26 0000
ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Work under this section is subject to requirements of the Contract Documents, including General and Supplementary Conditions and applicable portions of Division 1 – General Requirements.

1.2 WORK INCLUDED

A. Work of the Contract shall consist of furnishing all labor, tools, equipment, and materials to complete the Electrical Work as indicated on the Contract Drawings, described in these Specifications, and as listed below:

1. Systems that this Contractor shall furnish and install:
 - a. Complete power wiring to panels, motorized equipment, motors, miscellaneous outlets, and Owner's furnished equipment.
 - b. General wiring for power, lighting, and miscellaneous systems.
 - c. Materials and equipment for electrical work.
 - d. Electric distribution
 - e. Motor and equipment wiring, including units and fans, HVAC, plumbing.
 - f. Fire alarm system.
 - g. Emergency lighting and power systems.
 - h. Wiring of equipment furnished by others.
 - i. Empty conduit and backboxes for telephone and data.
 - j. Motor starters.
 - k. All other equipment, material, devices, accessories required and/or shown on the Drawings.
 - l. Provide light fixtures, exit signs, and other fixtures.
 - m. Timeclocks.
 - n. Motion sensors
 - o. Security equipment – card readers, proximity sensors, etc.

B. The Drawings and Specifications shall be understood to cover according to their intent and meaning, complete operating systems as shown on the Drawings and specified under appropriate Sections of the Specifications.

C. Items and accessories or devices necessary to complete the proper operation of any system shall be provided by the Contractor and Subcontractor for such system whether or not they are specifically called for by the Specifications and Drawings.

D. Additional work includes, but is not limited to the following:

1. Site visit to examine the existing conditions that may affect the performance of the work specified.

2. It shall be understood by submitting a base bid that any item required, even if not indicated in construction documents, to complete the intent of drawings and specifications is included in base bid.
3. No additional compensation shall be rendered to the contractor for any item if visual confirmation of discrepancy(s) can be made by field verification.
4. Obtain and pay for all permits, licenses, approvals, reviews, utility shut-downs, tests and inspections.
5. Sleeves through floors, walls, and structural elements of the building, set in coordinated locations.
6. All cutting, coring and patching of general construction as necessary for installation of the work specified. Smoke/fire stopping of all penetrations created by Electrical contracts. Provide a 2-part minimum fire stopping system complying with fire department approved, UL listed details, which establish a smoke or fire resistance rating equal to or greater than the wall or floor penetrated.
7. Coordinated shop drawings and calculations; submit and obtain approval by the Architect and Engineer.
8. Clean-up, on a daily basis, of all debris associated with the installation of this work as necessary to maintain the premises in a broom swept condition.
9. Testing, adjusting, retesting re-adjusting as may be required to obtain system acceptance by the City of Geneva Bureau of Inspectional Services, Owner's Insurance Underwriter, and Owner's Representative. Contractors shall remain responsible for their respective systems until all approvals are obtained.
10. Provide equipment manuals, record drawings, testing certificates and personnel instruction, prior to system turn-over to the Owner.

E. The work in this Division includes providing all labor, materials, specialty products, and services for, and reasonably incidental to, the satisfactory completion of the Electrical systems, as indicated on the Contract Drawings, in the Specification Sections, and/or required by codes and referenced standards.

1.3 CODES AND REGULATIONS

A. Work under the Electrical Sections shall comply with the latest edition of the following standards and codes.

1. Indiana Electrical Code
2. Indiana Building Code
3. Amendments, Rules, & Regulations of the City of Gary Building Department
4. NFPA 72
5. NFPA 101
6. Indiana Department of Public Health
7. UL – Underwriters Laboratories

B. Obtain approvals for installations requiring approval. Prints of the Electrical Drawings will be furnished on request. Required wiring diagrams shall be provided and submitted for approval by the Electrical Contractor. Copies of the final approved drawings shall be delivered to the Engineer. Approvals shall be obtained before commencement of related work.

- C. Pay fees and charges incidental to electrical work, including required insurance, permits, licenses and inspections. Arrange for inspections and deliver certificates of approval to the Engineer as a requirement for final payment.

1.4 COORDINATION OF WORK BETWEEN VARIOUS TRADES

- A. The Electrical Contractor shall be thoroughly informed of the intricacies of work which is to be performed by the General Contractor, Mechanical, Plumbing, and other Electrical Contractors. He shall perform his contractual obligations in full coordination with aforementioned trades. Prior to ordering of any electrical equipment, verify electrical characteristics of all mechanical equipment and inform the Architect/Engineer of all discrepancies. Claims for additional compensation will be denied due to failure to comply with the foregoing requirements.

1.5 SCHEDULING OF WORK

- A. Coordinate work with mechanical and general trades in order not to cause any delays in project progress schedule.

1.6 DEFINITIONS AND INTERPRETATIONS

- A. Specific terminology used in the Drawings and Specifications shall have the following meanings:
 1. “Piping” includes pipe, fittings, couplings, hangers, supports, and other customarily required items required in connection with the transfer of electricity or data.
 2. “Install” includes unloading at the delivery point for the project and performing all tasks necessary to establish a secure mounting and correct operation, for items and assemblies furnished by other trades or the Owner.
 3. “Furnish” includes purchase and delivery to the project site, of items and assemblies, complete with necessary appurtenance.
 4. “Provide” shall mean “Furnish and Install”.
 5. “Concealed” when used in connection with the installation of piping, shall mean hidden from view behind chases, furred spaces, pipe shafts, or above suspended ceilings.
 6. “Contractor” shall mean the Electrical Contractors and their vendors, fabricators or subcontractors.
 7. “Design Drawings” or “Contract Documents” shall mean documents, including drawings and written specifications, prepared by the Architects and Engineers, to obtain building permits and competitive bid proposals from contractors, for construction of the specified electrical systems.
 8. “Shop Drawings” shall mean documents, including calculations, drawings and material specifications prepared by the Electrical Contractors, obtaining approval from the authority having jurisdiction, Owner’s Insurance Underwriter, Architect/Engineer.
- B. The use of the Design Drawings and Specifications by the contractor, for Bid Proposal and Working Drawing preparation, shall include the following understanding:

1. The information included in the drawings and specifications is given as a guide only, to indicate general feasibility and to show an acceptable arrangement of systems and equipment.
2. The design drawings utilize symbols and diagrams to indicate required work, representing only the sequence of items to be installed, which have no dimensional significance and do not indicate every required item to be provided. The work shall be installed in accordance with the diagrammatic intent expressed on the drawings, in conformity with the dimensions indicated on the final architectural and structural working drawings, and final equipment shop drawings. Information regarding general construction shall be derived only from the architectural and structural drawings and specifications.
3. The drawings and specifications are complementary and are to be utilized together for a complete interpretation of the work intended. The higher capacity or standard shall be provided, where conflicts between the drawings and specifications, or conflicts within themselves, occur.
4. The limitations of the language used on the drawings and specifications shall not be interpreted as meaning that accessories and appurtenances, required for completion of work, are to be excluded. The description of any item, on the drawings or in the specifications or both, requires the installation of all its necessary components for approved, satisfactory operation.
5. Submission of a bid proposal requires the contractor to review all project documents and visit the construction site, to be thoroughly familiar with all requirements for the project, and identify in the bid, conditions that may affect the efficient and satisfactory performance of the work. Claims for additional compensation shall be denied if the above procedures are not followed and the disputed conditions would have been identified by the completion of these required tasks.
6. The information shown on the design drawings and written in the specifications shall not be interpreted as to instruct the contractor to not follow the applicable codes or local amendments. Where the information provided for guidance is believed not to be in conformance with the code requirements and referenced standards, the contractor shall notify the Architect and Engineer for clarification prior to the submission of his bid proposal.

1.7 INGRESS AND EGRESS OF EQUIPMENT AND MATERIAL

- A. All openings, chases, and passageways into, out of or throughout the building shall be as indicated on the Architectural Plans. Where not indicated, required open ways for electrical work shall be provided by the Electrical Contractor.
- B. Coordinate the movement of equipment and material prior to the closing of open ways.

1.8 DRAWINGS AND SPECIFICATIONS

- A. The Contractor shall fully inform himself regarding all peculiarities and limitations of spaces available for the installation of materials and work provided under this Contract. Exercise due and particular caution to determine that all parts of the work shall be made quickly and easily accessible.

- B. The Contract Drawings accompanying these Specifications are to be considered important and integral parts of the same. Items omitted from one and contained in the other shall be furnished as if contained in both.
- C. Where conflicts in size, quantity or quality occur, the larger size, greater quantity, and superior quality shall govern and be furnished.
 - 1. The Contract Drawings shall serve as working drawings for the general layout of equipment. Layout of equipment, accessories, and specialties as shown are diagrammatic, and do not necessarily indicate every required junction box, pull box, and conduit routing, unless specifically dimensioned.
 - 2. It is intended that equipment shall be located symmetrically to site construction, notwithstanding the fact that locations indicated on the Drawings may be distorted for clearness in presentation.
 - 3. The Drawings indicate required size and points of termination, suggest proper routes to conform to structures, avoid obstruction and preserve clearances.

1.9 RECORD DOCUMENTS

- A. Provide AutoCAD (CAD) drawings, minimum 1/8" scale plans.
- B. Record Drawings shall show size, type, material, and equipment, location of outlets and source in building conduit, and communication systems.
- C. These Drawings shall also record the location of all underground services, and equipment by indication of measured dimensions to each such line from readily identifiable site elements.
- D. The Contractor shall submit letter of certification with pay request indicating that the record drawings on site are up to date and reflect true "as-built" conditions at that time. No pay request will be approved without this letter.
- E. The Contractor or Subcontractor shall keep at the project site one complete set of the Contract Working Drawings on which he shall record any deviations or changes from such Drawings made during construction. Record Drawings shall show change in size, type, capacity, etc., or material, device or piece of equipment, location of any outlet or source in building service system, rerouting any piping, or other building services.
- F. After the project is completed, three copies of these Drawings shall be delivered to the Owner in good condition as a permanent record of the installation as actually constructed, as a precedent to final payment.

1.10 SUBMITTALS

- A. Submit under provisions of Section 01001.
- B. Shop Drawings submittal shall have a coordination sign-off signature from all disciplines.
- C. No material or equipment shall be purchased or installed without approved submittal.

- D. Electrical contractors shall obtain written approval from mechanical and plumbing contractors on product submittals.
- E. "As-Built" drawings shall include all the revisions done during the construction period.
- F. Electronic Submittals:
 - 1. Electronic submittals are preferred, but hard copy submittals will be accepted for review.
 - 2. Electronic submittals shall consist of pertinent information only, so as to minimize size of electronic files. Information that is not specific to the project will not be reviewed.
 - 3. Each category of product shall be submitted individually and shall be submitted in a separate email.
 - 4. Provide cover sheet with space for engineer's stamp.
 - 5. Provide transmittal sheet indicating section, title, and tag number as per table of contents of these specifications.
 - 6. Shop drawings larger than 1 mb shall not be submitted by email.
 - 7. Installation manuals shall be distributed through the contractor and shall not be submitted for engineer's review.
 - 8. Operation and maintenance manuals shall be submitted with project close out documents.
- G. Such submittals shall contain outline dimensions, operating and maintenance clearances and sufficient engineering data to indicate compliance with Specifications. Each submittal shall be clearly labeled with:
 - 1. Name of the job.
 - 2. Contractor's name and trade.
 - 3. The function of the item on which approval is required.
 - 4. Manufacturer's name.
 - 5. Subcontractor's name (if any).
 - 6. Number of specification that item is being submitted under (i.e., Section 23 3416-2.08-A-4).
- H. Review of Shop Drawings is rendered as a service only and shall not be considered as a guarantee of measurements or building conditions, nor shall it be construed as relieving the Contractor of basic responsibility under the Contract.
- I. Submit shop drawings, product data, and installation instructions for the equipment provided under this section and respective sections of the specifications.

1.11 SUBSTITUTIONS

- A. In accordance with the Architectural General Provisions.
- B. Substitutions submitted by the contractor shall be fully coordinated by said contractor for physical size, weight, and equivalence to what has been specified. Contractor shall be responsible for the substitution's compliance to original design intent including voltage, amperage, energy usage, photometric equivalence, etc.

- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Support each request as follows:
 - 1. Identify product by Specifications section and Article numbers.
 - 2. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description
 - 2) Reference standards
 - 3) Performance and test data.
 - c. Samples, as applicable.
 - d. Name and address of similar projects on which product has been used, and date of each installation.
 - 3. Provide itemized comparison of the proposed substitution with product specified; list significant variations.
 - 4. Data relating to changes in construction schedule.
 - 5. Any effect of substitution on separate contracts.
 - 6. List of changes required in other work or products.
 - 7. Accurate cost data comparing proposed substitution with product specified.
 - a. Amount of any net change to Contract Sum.
 - 8. Designation of availability of maintenance services, sources of replacement materials.
- D. A request constitutes a representation that the Bidder and/or Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the Substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will coordinate with other disciplines and include any and all costs and/or credits to other disciplines affected by the substitution.
 - 6. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals; without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of Request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit shop drawings, Product data, and certified test results attesting to the proposed Product equivalence.
 - 3. The Architect/Engineer will notify Contractor, in writing, of decision to accept or reject request.

- A. Shop Drawings and product data shall be submitted as directed under provisions of Architectural sections.
- B. Electronic Submittals:
 - 1. Electronic submittals are preferred, but hard copy submittals will be accepted for review.
 - 2. Electronic submittals shall consist of pertinent information only, so as to minimize size of electronic files. Descriptive catalog information or sales type brochures will be returned without review.
 - 3. Provide cover sheet with space for engineer's stamp.
 - 4. Provide transmittal sheet indicating section and title as per table of contents of these specifications.
 - 5. Contractor shall submit electronic drawings to architect for distribution.
 - 6. Shop drawings larger than 1 mb shall not be submitted by email.
- C. Review of Shop Drawings is rendered as a service only and shall not be considered as a guarantee of measurements or building conditions, nor shall it be construed as relieving the Contractor of responsibility under the Contract.
- D. Electrical Contractor shall submit the following:
 - 1. Product Data: Catalog cuts and technical information for all new electrical equipment including:
 - a. Circuit breakers
 - b. Dimming equipment
 - c. Fuses
 - d. Fire alarm system
 - e. Lamps
 - f. Lighting equipment
 - g. Lighting fixtures, special or custom built
 - h. Wire and cable
 - i. Wiring devices
 - j. Wiring device plates

1.13 STANDARDS FOR MATERIAL WORKMANSHIP

- A. Workmanship shall be in accordance with Division 1.
- B. All materials shall be new and shall conform to the standards of the Underwriters' Laboratories, Inc., in every case where such standards have been established for the particular material in question. All work shall present a neat, mechanical appearance when completed.
- C. Materials, the style, make or quality of which is specifically designated, shall be as specified. Should any substitution of material or item of equipment or apparatus be made, the Engineer's written approval must be obtained prior to installation.
- D. Furnish necessary materials in ample quantities and as frequently as required to avoid delays in the progress of the work, and so store them as to prevent interference with other work.

- E. All conduit shall be run parallel to lines of the building unless otherwise distinctly shown or noted in the Drawings.
- F. Conduit shall be concealed where possible.
- G. Hangers shall be supported from rods fastened to building construction. Wire or perforated strap iron will not be permitted.
- H. Where head room requirements or physical space limitations necessitate, consideration shall be given to altering of building structural elements such as penetrating beams, webs, notching of joists, etc., which shall be kept to an absolute minimum, and shall be done only after written permission is issued by the Architect and/or Structural Engineer. Any damage done to structural or architectural elements shall be restored and/or repaired to the satisfaction of the Engineer at the expense of the installer. Refer to Section 01045 Cutting and Patching.
- I. All piping, equipment, devices, hangers, etc., shall be securely and permanently hung from supporting walls, roof or floor construction etc., in a manner satisfactory to the Architect and Engineer.
- J. All material or work found to be defective or not in strict conformity with the Drawings or different from the requirements of the Drawings and Specifications, or defaced or injured through negligence of the Contractor or his employees, or through the action of fire or weather or any other cause, will be rejected and shall be immediately removed from the premises by the Contractor and satisfactory material and work substituted therein without delay.
- K. Any defective material or work which may be discovered shall be corrected immediately on notice from the Engineer. No previous inspection or certificate on account shall be held to relieve the Contractor from his obligation to furnish sound material and to perform good and satisfactory work.

1.14 MATERIAL

- A. All materials shall be new and shall conform to the standards of the Underwriters' Laboratories, Inc. All work shall present a neat, appearance when completed.
- B. Materials, style, make or quality of which is specifically designated, shall be provided. Should any substitution of material be made, the Engineer's written approval must be obtained prior to installation.
- C. Furnish necessary materials in ample quantities and as frequently as required to avoid delays in the progress of the work.
- D. Conduit shall run parallel to lines of the building unless otherwise distinctly shown or noted in the Drawings.
- E. Where physical space limitations necessitate, consideration shall be given to altering of building structural elements such as penetrating beams, webs, notching of joists, etc., and

shall be done only after written permission is issued by the Architect and/or Structural Engineer. Any damage done to structural or architectural elements shall be restored to the satisfaction of the Engineer/Architect at the expense of the installer.

- F. Electrical equipment, devices, etc., shall be securely and permanently hung from supporting walls, or roof construction, in a manner satisfactory to the Architect and Engineer.
- G. Material or work found to be defective, not in strict conformity with the Drawings and Specifications, defaced, or injured shall be immediately removed from the premises and new material and work provided without delay.
- H. Defective material or work shall be corrected immediately on notice from the Engineer/Architect. No previous inspection or certificate on account shall be held to relieve the Contractor from his obligation to furnish sound material and to perform satisfactory work.

1.15 MANUFACTURER'S NAMEPLATES

- A. Major components of equipment shall have the manufacturer's name, address, model number and rating on a plate securely affixed in a conspicuous place. The nameplate of a distributing agent will not be acceptable.

1.16 LINES AND LEVELS

- A. Electrical Contractor shall be responsible for lines and levels of lighting fixtures, panels and conduit, based on reference lines and benchmarks established by the Contractor for the general work.

1.17 RULES AND REGULATIONS

- A. All workmanship and materials shall conform to the requirements of the building and ordinances and rules and regulations of all departments and bureaus of the County, City and State having lawful jurisdiction, irrespective of any statements herein to the contrary.

1.18 ORDINANCES

- A. The work shall be in accordance with the governing State and Local ordinances, codes and regulations; including fire rating and inspection bureaus and the N.F.P.A. regulation, all of which are hereby made a part of these Specifications.

1.19 GUARANTEES

- A. Furnish guarantees as per Architectural General Provisions and as follows:
- B. Guarantee work, materials and equipment against defects for a period of one year from the date of substantial completion. Repairs or replacements made under the guarantee shall bear an additional twelve (12) month guarantee from date of repair or replacement. Provide all services necessary to the proper performance of the system for a period of one

(1) year from the date of substantial completion of the contract at no additional charge to the Owner.

C. Submit product warranties on equipment including any extended warranties. Identify all warranties with specification section number and equipment identification number.

1.20 HOUSEKEEPING

A. Furnish cleaning as per Architectural General Provisions and as follows.

B. Keep stocks of materials and equipment stored on the premises in a neat and orderly manner.

C. Exposed surfaces of electrical equipment which has become covered with dirt, plaster, or other material during handling and construction, shall be thoroughly cleaned.

1.21 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and protect materials and equipment under Division 01.

B. Any fixtures, equipment or apparatus delivered to the project and stored on the project exposed to the weather, shall be completely covered with a minimum 6 mil white polyethylene sheets.

1.22 ACCESS PANELS

A. Ceiling and wall access panels needed to access electrical equipment shall be provided by the electrical contractor. Coordinate installation with the general contractor.

1.23 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for electrical installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for items requiring access that are concealed behind finished surfaces.

1.24 CHANGE PROPOSAL REQUESTS

A. All Change Proposal Requests for work additional to the base bid contract shall be based on material, labor, overhead and profit costs as published in the latest edition of "Means Mechanical, Electrical, Plumbing, and Building Construction Cost Data". All change requests must be broken down in the following manner:

1. Material cost: (ie. Equipment, sheet metal per pound and piping per lineal foot/fitting).
2. Labor cost: (Number of hours at current labor rate per hour)

3. Overhead and profit: (Indicating percentages)
4. Total change order price: (Material + labor = O&P)
5. Pricing for all items of work which are to be credited to the project shall be broken down in a similar manner to the added costs.
6. The associated cost for drafting changes (including three-dimensional modeling) shall not exceed 10% of the cost of material and labor for the change.

B. Should the contractor elect not to follow MEANS, they shall at time of bid (not after) submit their unit price schedule which is to be all inclusive in place price. Any item not identified in unit price schedule will be reviewed using MEANS.

1.25 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Furnish to the Owner three (3) manuals covering model, type, serial numbers, capacities, flow, operation and maintenance of each major item of equipment or apparatus. Operation instructions shall cover all phases of control.

1.26 FINAL PAYMENT

A. Final payment shall be withheld until all items of deficiency are corrected and accepted, and complete sets of reproducible "as-built" record drawings are received from each subcontractor for their work.

PART 2 PRODUCTS – Not used

PART 3 EXECUTION

3.1 PREPARATION

A. Determine the related work in place is free of conditions which might be detrimental to proper and timely completion of the work. Start of work shall indicate acceptability of the related work.

3.2 INSTALLATION

A. Electrical Drawings, which accompany these Specifications, show the work to be installed and shall be followed as closely as actual construction will permit. Changes from the Electrical Drawings necessary to make the electrical work conform to the site plan and to fit the work of other trades shall be made without extra cost.

B. Give careful consideration to clearances under beams, over windows, etc. to provide maximum headroom in all cases, and to the locations of lines and type of fittings used to obtain these clearances. Ascertain from the drawings the heights of all suspended ceilings and the size of all shafts in which work is to be concealed, and the location and size of structural members in and adjacent to all shafts. Coordinate the work with all other equipment. In any case, where insufficient room is provided for piping above

suspended ceilings, or in vertical shafts, obtain clarification from the Engineer before any work is installed.

- C. Refer to equipment shop drawings of equipment being furnished under other sections for exact location of outlets and electrical connections required.
- D. Before making any installation, make necessary and proper arrangements for changes required to avoid interference with on other systems.
- E. Where electrical work is required for connection to equipment furnished under other sections, verify electrical requirements in the field and make proper connection to such equipment.
- F. Where existing areas are being demolished and will be occupied or accessible during construction, provide temporary lighting (normal and egress), fire alarm, life safety equipment, etc. for safe continued use of the space until construction is complete.
- G. Provide temporary power as required to ensure existing electrical systems remain operational during construction. All work shall be performed so as to minimize owner downtime. Contractor shall include work on premium time as required.
- H. Plans and diagrams indicate minimum feeder sizes. Final routing shall be determined by the contractor. The contractor shall adjust the sizing of the feeders accordingly in order to maintain acceptable voltage drop at the final device.

3.3 CUTTING

- A. All cutting required for the installation of electrical work shall be by the electrical contractor.

3.4 SLEEVES

- A. Provide sleeves and openings for exposed conduits, and wireways where they pass through walls or floors.
- B. Pack or fill sleeves and openings after the completed work is in place. Filling shall provide a waterproof and fireproof packing to prevent leakage of liquid, smoke, or fire through the sleeve or opening. Fireproofing compound shall be UL listed and equal to the fire rating of the surrounding construction.
- C. Where conduits pass through foundation walls, provide entrance seals, link seal type "WS", and type "LS" or 0.2 Gedney type "WS" and type "LS" or 0.2 Gedney type "WSK" or "CM" as applicable.

3.5 EQUIPMENT NOISE LIMITATION

- A. Noise levels of electrical devices and equipment shall be within acceptable limits as established by NEMA or other valid noise rating agencies. Noise levels shall be subject

to the Engineer's acceptance, based on practical and reasonable consideration of occupancy requirements.

- B. Check and tighten the fastenings of sheet metal plates, covers, doors, and trims to prevent vibration and chatter under normal conditions of use.
- C. When located elsewhere than in high noise level equipment rooms, the enclosures of solenoid-operated switching devices and other noise producing devices shall have anti-vibration mountings and non-combustible sound absorbing linings.

3.6 LOCATION OF WIRING AND OUTLETS

- A. Coordinate the work with all trades involved so that exact locations may be obtained for apparatus, appliances and wiring.

3.7 TRANSMISSION OF VIBRATION

- A. Electrical equipment, conduit and fittings shall not be mounted to elements subject to vibration. Where flexible lengths of conduit are utilized, as a means of isolating equipment and conduit systems, provide additional ground wire and clamps for proper ground continuity.

3.8 MOUNTING HEIGHTS

- A. Mounting heights of electrical items shall be as per the architectural drawings, elevations and details, unless otherwise indicated by the Engineer/ Architect's field instructions. Dimensions are above finished floor.

3.9 EQUIPMENT IDENTIFICATION

- A. Provide permanent identification markings for each item of electrical apparatus and associated controlled equipment, with the same inscriptions as shown on the Drawings, or as directed. Confirm all nameplates and schedules prior to ordering.
- B. Provide paint stenciled inscription markings on the outside and inside face of each feeder splice box, junction box, and pull box cover plate indicating feeder size, voltage, phase, and load served.
- C. Apply engraved plastic laminate name plates with non-corroding screw fasteners or rivets to all panelboards. Name plates shall be white with black core, 1-1/4" x 3" minimum.
- D. Provide typewritten directory of circuits in panels and provide panel identification in black alkyd paint stenciled inscriptions on the inside of the door, directly above the center line of directory frame, or on vertical and horizontal center line of doors without directory frames.
- E. Provide on device plates for toggle switch type manual starters, pilot lights, motor starters, and other electrical items whose function is not readily apparent, or plastic laminate name plates describing the equipment controlled. Embossed self-adhering

plastic tape labels will not be accepted. Each wire and each cable shall be labeled at terminals and at all accessible points in equipment and panelboards. Labels shall be self-sticking wire markers.

- F. Paint all fire alarm system junction boxes, pull boxes, etc., red.
- G. Provide schedule of nameplates for approval.
- H. Identify all emergency circuits, pull boxes, etc. See respective specification sections.

3.10 OPERATING TESTS

- A. Upon completion of the electrical work, place the entire installation in operation. Test for proper function and show systems and equipment to be free of defects. Motors and driven equipment shall not be run until properly lubricated.
- B. Testing shall be as follows:
 - 1. After wires are in place and connected to devices and equipment, the system shall be tested for shorts and grounds.
 - 2. All hot wires, if shorted or grounded, shall be removed and replaced.
 - 3. A voltage test shall be made at the last outlet on each circuit. If drop in potential is excessive, Contractor will be required to correct the condition.
 - 4. All grounds, shorts and high resistance splices shall be rectified.
 - 5. Any wiring device, electrical apparatus or lighting fixture furnished under this Contract, if grounded or shorted on any integral "live" part, shall be removed and the trouble rectified by replacing all defective parts or materials as directed.
 - 6. Service ground to be tested per National Electrical Code requirement. Grounding pole of all receptacles to be tested.
 - 7. All motors shall be tested under load with ammeter reading taken in each phase, and the RPM of motors recorded at the time. All motors shall be tested for correct direction or rotation. Electrical Contractor shall be responsible for testing running of all motors and shall verify that proper overload devices have been installed.
 - 8. All meters, instruments, cable connections, equipment or apparatus necessary for making all testing, shall be furnished by this Contractor at his own expense.
- C. One month after the turnover of all project spaces, the Electrical Contractor shall perform a (30) day meter reading on all emergency branches affected by this project. Each transfer switch shall be measured for the period of (30) days at increments not greater than one minute, by a Fluke (or equivalent) recording meter on the load side of each transfer switch. The following shall be measured: phase and neutral peak/avg/min voltages, amperage and frequency. The Contractor shall provide the Owner with a data output file and hardcopy of the readings for record. The Contractor shall obtain the required recording equipment to simultaneously record all transfer switches.

3.11 LOCATION OF EQUIPMENT AND DEVICES

- A. Locations of equipment and devices are approximate. Where equipment and devices are exposed to public view the exact locations are as shown on the Architectural drawings,

approved coordination drawings, and approved shop drawings. In all cases, consult with the Architect when the exact location is in doubt.

- B. Prior to rough-in, relocate equipment when directed by Architect/Engineer without cost.

3.12 COORDINATION

- A. Prior to the start of electrical work, the electrical contractor shall review the mechanical contractor's shop drawings and coordinate the conduit and box layout with the mechanical contractor's piping and ductwork shop drawings, including fire protection.
- B. Care shall be taken to maintain code required clearances above and in front of all electrical equipment.

END OF SECTION

SECTION 26 0505

SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical demolition.

1.2 RELATED REQUIREMENTS

- A. Section 01001 - Basic Requirements: Additional requirements for alterations work.

1.3 SUBMITTALS

- A. See Section 01001 - For submittal procedures.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as indicated.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation and existing record documents.
- D. Report discrepancies to Architect before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
- B. Coordinate utility service outages with utility company.

- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction.
- B. Remove abandoned wiring to source of supply.
- C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- E. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- F. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.
- G. Repair adjacent construction and finishes damaged during demolition and extension work.
- H. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
- I. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.4 CLEANING AND REPAIR

- A. See Section 01001 - For additional requirements.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.
- C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Single conductor building wire.
- B. Armored cable.
- C. Metal-clad cable.
- D. Wiring connectors.
- E. Electrical tape.
- F. Wire pulling lubricant.
- G. Cable ties.
- H. Firestop sleeves.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 26 0505 - Selective Demolition for Electrical: Disconnection, removal, and/or extension of existing electrical conductors and cables.
- C. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

1.3 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010 (Reapproved 2014).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2014).

- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- G. NECA 120 - Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC) 2012.
- H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2009.
- I. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 4 - Armored Cable Current Edition, Including All Revisions.
- L. UL 44 - Thermoset-Insulated Wires and Cables Current Edition, Including All Revisions.
- M. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.
- N. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.
- O. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.
- P. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.
- Q. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.
- R. UL 1569 - Metal-Clad Cables Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 - 3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - Administrative Requirements, for submittal procedures.

- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01001 - Product Requirements, for additional provisions.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.8 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect and obtain directions before proceeding with work.

PART 2 PRODUCTS

2.1 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.
- D. Underground feeder and branch-circuit cable are not permitted.
- E. Service entrance cable is not permitted.

- F. Armored cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - b. Only as allowed by Code.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Unless approved by Owner.
 - b. Where not approved for use by the authority having jurisdiction.
 - c. Where exposed to view.
 - d. Where exposed to damage.
 - e. For damp, wet, or corrosive locations.
- G. Metal-clad cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - 1) Maximum Length: 6 feet.
 - b. Only as allowed by Code.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Unless approved by Owner.
 - b. Where not approved for use by the authority having jurisdiction.
 - c. Where exposed to view.
 - d. Where exposed to damage.
 - e. For damp, wet, or corrosive locations, unless provided with a PVC jacket listed as suitable for those locations.

2.2 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductor Material:
 - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.

3. Tinned Copper Conductors: Comply with ASTM B33.

H. Minimum Conductor Size:

1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
 2. Control Circuits: 14 AWG.

I. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

J. Conductor Color Coding:

 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 2. Color Coding Method: Integrally colored insulation.
 3. Color Code:
 - a. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.

2.3 SINGLE CONDUCTOR BUILDING WIRE

A. Manufacturers:

1. Copper Building Wire:
 - a. General Cable Technologies Corporation: www.generalcable.com.
 - b. Southwire Company: www.southwire.com.

B. Description: Single conductor insulated wire.

C. Conductor Stranding:

1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.

D. Insulation Voltage Rating: 600 V.

E. Insulation:

1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
 - a. Installed Underground: Type XHHW-2.

2.4 ARMORED CABLE

- A. Manufacturers:
 - 1. AFC Cable Systems Inc: www.afcweb.com/#sle.
 - 2. Encore Wire Corporation: www.encorewire.com/#sle.
 - 3. Southwire Company: www.southwire.com/#sle.
- B. Description: NFPA 70, Type AC cable listed and labeled as complying with UL 4, and listed for use in classified firestop systems to be used.
- C. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type THHN.
- F. Grounding: Combination of interlocking armor and integral bonding wire.
 - 1. Provide additional full-size integral insulated equipment grounding conductor for redundant grounding, suitable for general purpose, non-essential electrical systems in non-hazardous patient care areas of health care facilities.
- G. Armor: Steel, interlocked tape.

2.5 METAL-CLAD CABLE

- A. Manufacturers:
 - 1. AFC Cable Systems Inc: www.afcweb.com.
 - 2. Encore Wire Corporation: www.encorewire.com.
 - 3. Southwire Company: www.southwire.com.
- B. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569 and listed for use in classified firestop systems to be used.
- C. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type THHN, THHN/THWN or THHN/THWN-2.
- F. Grounding: Full-size integral equipment grounding conductor.
- G. Armor: Steel, interlocked tape.
- H. Provide PVC jacket applied over cable armor where indicated or required for environment of installed location.

2.6 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.
- C. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 - 4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
 - 5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- H. Mechanical Connectors: Provide bolted type or set-screw type.
- I. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.7 ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion,

corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

- B. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- C. Cable Ties: Material and tensile strength rating suitable for application.
- D. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.3 INSTALLATION

- A. Circuiting Requirements:
 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 2. When circuit destination is indicated without specific routing, determine exact routing required.
 3. Arrange circuiting to minimize splices.
 4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
 5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 6. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 7. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:

- a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
 - b. Increase size of conductors as required to account for ampacity derating.
 - c. Size raceways, boxes, etc. to accommodate conductors.
- 8. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Install armored cable (Type AC) in accordance with NECA 120.

E. Install metal-clad cable (Type MC) in accordance with NECA 120.

F. Installation in Raceway:

- 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
- 2. Pull all conductors and cables together into raceway at same time.
- 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
- 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

G. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

H. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.

I. Terminate cables using suitable fittings.

- 1. Armored Cable (Type AC):
 - a. Use listed fittings and anti-short, insulating bushings.
 - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
- 2. Metal-Clad Cable (Type MC):
 - a. Use listed fittings.
 - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.

J. Install conductors with a minimum of 12 inches of slack at each outlet.

- K. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- L. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- M. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
 - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- N. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- O. Insulate ends of spare conductors using vinyl insulating electrical tape.
- P. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.4 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
- D. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 0526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.

1.2 RELATED REQUIREMENTS

- A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
 - 1. Includes oxide inhibiting compound.
- B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.3 REFERENCE STANDARDS

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - Administrative Requirements for submittals procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Field quality control test reports.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING REQUIREMENTS

- A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.
- B. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- E. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Architect. Precipitation within the previous 48 hours does not constitute normally dry conditions.

2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.

F. Bonding and Equipment Grounding:

1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

2.2 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:

1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:

1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors or exothermic welded connections for accessible connections.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Make grounding and bonding connections using specified connectors.
 - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- D. Identify grounding and bonding system components in accordance with Section 26 0553.
- E. FIELD QUALITY CONTROL
- F. See Section 01001 - Quality Requirements, for additional requirements.
- G. Inspect and test in accordance with NETA ATS except Section 4.
- H. Perform inspections and tests listed in NETA ATS, Section 7.13.
- I. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- J. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.
- K. Submit detailed reports indicating inspection and testing results and corrective actions taken.

END OF SECTION

SECTION 26 0529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.2 RELATED REQUIREMENTS

- A. Section 26 0533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.
- B. Section 26 0533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.
- C. Section 26 5100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.3 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2019.
- D. MFMA-4 - Metal Framing Standards Publication 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 5B - Strut-Type Channel Raceways and Fittings Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
2. Coordinate the work with other trades to provide additional framing and materials required for installation.
3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel (strut) framing systems, non-penetrating rooftop supports and post-installed concrete and masonry anchors.
- C. Shop Drawings: Include details for fabricated hangers and supports where materials or methods other than those indicated are proposed for substitution.
- D. Derating Calculations for Fiberglass Channel (Strut) Framing Systems: Indicate load ratings adjusted for applicable service conditions.
- E. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.6 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with applicable building code.
- C. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
 - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
 - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 25%. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 5. Do not use wire, chain, perforated pipe strap or wood for permanent supports unless specifically indicated or permitted.
 - 6. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
 - 1. Comply with MFMA-4.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
 - 1. Minimum Size, Unless Otherwise Indicated or Required:
 - a. Equipment Supports: 1/2 inch diameter.
 - b. Single Conduit up to 1 inch (27 mm) trade size: 1/4 inch diameter.
 - c. Single Conduit larger than 1 inch (27 mm) trade size: 3/8 inch diameter.
 - d. Trapeze Support for Multiple Conduits: 3/8 inch diameter.
 - e. Outlet Boxes: 1/4 inch diameter.
 - f. Luminaires: 1/4 inch diameter.
- F. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
 - 2. Hollow Masonry: Use toggle bolts.
 - 3. Hollow Stud Walls: Use toggle bolts.

4. Steel: Use beam clamps, machine bolts or welded threaded studs.
5. Sheet Metal: Use sheet metal screws.
6. Plastic and lead anchors are not permitted.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- H. Secure fasteners according to manufacturer's recommended torque settings.
- I. Remove temporary supports.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect support and attachment components for damage and defects.
- C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- D. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 26 0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Intermediate metal conduit (IMC).
- C. PVC-coated galvanized steel rigid metal conduit (RMC).
- D. Flexible metal conduit (FMC).
- E. Liquid tight flexible metal conduit (LFMC).
- F. Electrical metallic tubing (EMT).
- G. Conduit fittings.
- H. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Metal clad cable (Type MC), armored cable (Type AC), and manufactured wiring systems, including uses permitted.
- C. Section 26 0526 - Grounding and Bonding for Electrical Systems.
 - 1. Includes additional requirements for fittings for grounding and bonding.
- D. Section 26 0529 - Hangers and Supports for Electrical Systems.
- E. Section 26 0533.16 - Boxes for Electrical Systems.
- F. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.3 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2015.

- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S) 2015.
- C. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit (EIMC) 2005.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2013.
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- G. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit 2018.
- H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 1 - Flexible Metal Conduit Current Edition, Including All Revisions.
- J. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.
- K. UL 360 - Liquid-Tight Flexible Steel Conduit Current Edition, Including All Revisions.
- L. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.
- M. UL 797 - Electrical Metallic Tubing-Steel Current Edition, Including All Revisions.
- N. UL 1242 - Electrical Intermediate Metal Conduit-Steel Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
 - 4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
 - 5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:

1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.5 SUBMITTALS

- A. See Section 01001 - For submittals procedures.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Concealed Within Masonry Walls: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC) or electrical metallic tubing (EMT).
- D. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC) or electrical metallic tubing (EMT).
- E. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC) or electrical metallic tubing (EMT).
- F. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit.
- G. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC) or electrical metallic tubing (EMT).
- H. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).

1. Locations subject to physical damage include, but are not limited to:
 - a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
- I. Exposed, Exterior: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC) or PVC-coated galvanized steel rigid metal conduit.
- J. Concealed, Exterior, Not Embedded in Concrete or in Contact with Earth: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
- K. Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit.
 1. Maximum Length: 6 feet.
- L. Connections to Vibrating Equipment:
 1. Dry Locations: Use flexible metal conduit.
 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.
 3. Maximum Length: 6 feet unless otherwise indicated.
 4. Vibrating equipment includes, but is not limited to:
 - a. Transformers.
 - b. Motors.

2.2 CONDUIT REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
- B. Fittings for Grounding and Bonding: Also comply with Section 26 0526.
- C. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- D. Provide products listed, classified, and labeled as suitable for the purpose intended.
- E. Minimum Conduit Size, Unless Otherwise Indicated:
 1. Branch Circuits: 1/2 inch (16 mm) trade size.
 2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
 3. Control Circuits: 1/2 inch (16 mm) trade size.
 4. Flexible Connections to Luminaires: 3/8 inch (12 mm) trade size.
 5. Underground, Interior: 3/4 inch (21 mm) trade size.
 6. Underground, Exterior: 1 inch (27 mm) trade size.
- F. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.3 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Manufacturers:
 1. Allied Tube & Conduit: www.alliedeg.com.

2. Republic Conduit: www.republic-conduit.com.
3. Wheatland Tube, a Division of Zekelman Industries: www.wheatland.com.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

C. Fittings:

1. Manufacturers:
 - a. Bridgeport Fittings Inc: www.bptfittings.com.
 - b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com.
 - c. Thomas & Betts Corporation: www.tnb.com.
2. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
4. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.4 INTERMEDIATE METAL CONDUIT (IMC)

A. Manufacturers:

1. Allied Tube & Conduit: www.alliedeg.com.
2. Republic Conduit: www.republic-conduit.com.
3. Wheatland Tube, a Division of Zekelman Industries: www.wheatland.com.

B. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

C. Fittings:

1. Manufacturers:
 - a. Bridgeport Fittings Inc: www.bptfittings.com.
 - b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com.
 - c. Thomas & Betts Corporation: www.tnb.com.
2. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
4. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.5 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers:

1. Thomas & Betts Corporation: www.tnb.com.
2. Robroy Industries: www.robroy.com.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.

- C. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil.
- D. PVC-Coated Fittings:
 - 1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
 - 2. Non-Hazardous Locations: Use fittings listed and labeled as complying with UL 514B.
 - 3. Material: Use steel or malleable iron.
 - 4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil.
- E. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil.

2.6 FLEXIBLE METAL CONDUIT (FMC)

- A. Manufacturers:
 - 1. AFC Cable Systems, Inc; www.afcweb.com.
 - 2. Electri-Flex Company; www.electriflex.com.
 - 3. International Metal Hose; www.metalhose.com.
- B. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1 and listed for use in classified firestop systems to be used.
- C. Fittings:
 - 1. Manufacturers:
 - a. Bridgeport Fittings Inc: www.bptfittings.com.
 - b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com.
 - c. Thomas & Betts Corporation: www.tnb.com.
 - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 3. Material: Use steel or malleable iron.

2.7 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Manufacturers:
 - 1. AFC Cable Systems, Inc; www.afcweb.com.
 - 2. Electri-Flex Company; www.electriflex.com.
 - 3. International Metal Hose; www.metalhose.com.
- B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- C. Fittings:
 - 1. Manufacturers:
 - a. Bridgeport Fittings Inc: www.bptfittings.com/#sle.
 - b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - c. Thomas & Betts Corporation: www.tnb.com/#sle.
 - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.

3. Material: Use steel or malleable iron.

2.8 ELECTRICAL METALLIC TUBING (EMT)

- A. Manufacturers:
 1. Allied Tube & Conduit; www.alliedeg.com.
 2. Republic Conduit: www.republic-conduit.com.
 3. Wheatland Tube, a Division of Zekelman Industries; www.wheatland.com.
- B. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- C. Fittings:
 1. Manufacturers:
 - a. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
 - b. Thomas & Betts Corporation: www.tnb.com/#sle.
 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 3. Material: Use steel or malleable iron.
 4. Connectors and Couplings: Use compression (gland) or set-screw type.
 - a. Do not use indenter type connectors and couplings.

2.9 ACCESSORIES

- A. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
- B. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force.
- C. Sealing Compound for Sealing Fittings: Listed for use with the particular fittings to be installed.
- D. Modular Seals for Conduit Penetrations: Rated for minimum of 40 psig; Suitable for the conduits to be installed.
- E. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.
- F. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.

- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- E. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.
- F. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal all conduits unless specifically indicated to be exposed.
 - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
 - a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - c. Within joists in areas with no ceiling.
 - 5. Arrange conduit to maintain adequate headroom, clearances, and access.
 - 6. Arrange conduit to provide no more than the equivalent of four 90-degree bends between pull points.
 - 7. Arrange conduit to provide no more than 150 feet between pull points.
 - 8. Route conduits above water and drain piping where possible.
 - 9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 - 10. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
- G. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
 - 4. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.

5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel (strut) with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use non-penetrating rooftop supports to support conduits routed across rooftops (only where approved).
9. Use of spring steel conduit clips for support of conduits is not permitted.
10. Use of wire for support of conduits is not permitted.

H. Connections and Terminations:

1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

I. Penetrations:

1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
6. Provide suitable modular seal where conduits penetrate exterior wall below grade.
7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
8. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
9. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07270.

- J. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
 - 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 - 2. Where conduits are subject to earth movement by settlement or frost.
- K. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
 - 1. Where conduits pass from outdoors into conditioned interior spaces.
 - 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- L. Provide grounding and bonding in accordance with Section 26 0526.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Basic Requirements, for additional requirements.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.
- D. Correct deficiencies and replace damaged or defective conduits.

3.4 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

3.5 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 0533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.
- C. Boxes and enclosures for integrated power, data, and audio/video.
- D. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 07270 - Firestopping.
- B. Section 08305 - Access Doors and Panels: Panels for maintaining access to concealed boxes.
- C. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- D. Section 26 0529 - Hangers and Supports for Electrical Systems.
- E. Section 26 0533.13 - Conduit for Electrical Systems:
 - 1. Conduit bodies and other fittings.
 - 2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.
- F. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- G. Section 26 2726 - Wiring Devices:
 - 1. Wall plates.
 - 2. Additional requirements for locating boxes for wiring devices.

1.3 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2010.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.

- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports 2013.
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2018.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- I. UL 508A - UL Standard for Safety Industrial Control Panels 2018.
- J. UL 514A - Metallic Outlet Boxes Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
 - 5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
 - 6. Coordinate the work with other trades to preserve insulation integrity.
 - 7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
 - 8. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Project Record Documents: Record actual locations for outlet and device boxes, pull boxes, cabinets and enclosures, floor boxes and underground boxes/enclosures.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 BOXES

- A. General Requirements:
 - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 - 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 - 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 - 2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 - 3. Use suitable concrete type boxes where flush-mounted in concrete.
 - 4. Use suitable masonry type boxes where flush-mounted in masonry walls.
 - 5. Use raised covers suitable for the type of wall construction and device configuration where required.
 - 6. Use shallow boxes where required by the type of wall construction.
 - 7. Do not use "through-wall" boxes designed for access from both sides of wall.
 - 8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 - 9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 - 10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.

11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
12. Minimum Box Size, Unless Otherwise Indicated:
 - a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
13. Wall Plates: Comply with Section 26 27 26.
14. Manufacturers:
 - a. Cooper Crouse-Hinds, a division of Eaton Corporation; www.cooperindustries.com.
 - b. Hubbell Incorporated; Bell Products; www.hubbell-rtb.com.
 - c. Hubbell Incorporated; RACO Products; www.hubbell-rtb.com.
 - d. O-Z/Gedney, a brand of Emerson Electric Co; www.emerson.com.
 - e. Thomas & Betts Corporation; www.tnb.com.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:

1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. NEMA 250 Environment Type, Unless Otherwise Indicated:
 - a. Indoor Clean, Dry Locations: Type 1, painted steel.
 - b. Outdoor Locations: Type 3R, painted steel.
3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

2.2 ACCESSORIES

A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for boxes and facade materials to be installed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Box Locations:
 - 1. Locate boxes to be accessible. Provide access panels in accordance with Section 08305 as required, where approved by the Architect.
 - 2. Unless dimensioned, box locations indicated are approximate.
 - 3. Locate boxes as required for devices installed under other sections or by others.
 - 4. Locate boxes so that wall plates do not span different building finishes.
 - 5. Locate boxes so that wall plates do not cross masonry joints.
 - 6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
 - 7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.
 - 8. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
 - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
 - b. Do not install flush-mounted boxes with area larger than 16 square inches or such that the total aggregate area of openings exceeds 100 square inches for any 100 square feet of wall area.
 - 9. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 0533.13.
- E. Box Supports:
 - 1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
- F. Install boxes plumb and level.
- G. Flush-Mounted Boxes:
 - 1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.

2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

- H. Install boxes as required to preserve insulation integrity.
- I. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- J. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07270.
- K. Close unused box openings.
- L. Install blank wall plates on junction boxes and outlet boxes with no devices or equipment installed or designated for future use.
- M. Provide grounding and bonding in accordance with Section 26 0526.
- N. Identify boxes in accordance with Section 26 0553.

3.3 CLEANING

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.4 PROTECTION

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

SECTION 26 0533.23
SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surface raceway systems.
- B. Wireways.

1.2 RELATED REQUIREMENTS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
 - 1. Includes metal channel (strut) used as raceway.
- C. Section 26 0533.13 - Conduit for Electrical Systems.
- D. Section 26 0533.16 - Boxes for Electrical Systems.
- E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- F. Section 26 2726 - Wiring Devices: Receptacles.

1.3 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. UL 5 - Surface Metal Raceways and Fittings Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of raceways with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate rough-in locations of outlet boxes provided under Section 26 0533.16 and conduit provided under Section 26 0533.13 as required for installation of raceways provided under this section.
 - 3. Verify minimum sizes of raceways with the actual conductors and components to be installed.

4. Notify Architect of any conflicts with or deviations from Contract Documents.
Obtain direction before proceeding with work.
- B. Sequencing:
 1. Do not install raceways until final surface finishes and painting are complete.
 2. Do not begin installation of conductors and cables until installation of raceways is complete between outlet, junction and splicing points.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including dimensions, knockout sizes and locations, materials, fabrication details, finishes, service condition requirements, and accessories.
 1. Surface Raceway Systems: Include information on fill capacities for conductors and cables.
- C. Shop Drawings:
 1. Pre-wired Surface Raceway Systems: Provide plan and elevation views including dimensioned locations of wiring devices and circuiting arrangements.
- D. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 RACEWAY REQUIREMENTS

- A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.2 SURFACE RACEWAY SYSTEMS

- A. Manufacturers:
 - 1. Hubbell Incorporated; www.hubbell.com.
 - 2. Wiremold, a brand of Legrand North America, Inc; www.legrand.us.
- B. Surface Metal Raceways: Listed and labeled as complying with UL 5.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes and conduit terminations are installed in proper locations and are properly sized in accordance with NFPA 70 to accommodate raceways.
- C. Verify that mounting surfaces are ready to receive raceways and that final surface finishes are complete, including painting.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install raceways plumb and level.
- D. Secure and support raceways in accordance with Section 26 0529 at intervals complying with NFPA 70 and manufacturer's requirements.
- E. Close unused raceway openings.
- F. Provide grounding and bonding in accordance with Section 26 0526.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.

- B. Inspect raceways for damage and defects.
- C. Correct wiring deficiencies and replace damaged or defective raceways.

3.4 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.5 PROTECTION

- A. Protect installed raceways from subsequent construction operations.

END OF SECTION

SECTION 26 0553

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Voltage markers.
- D. Warning signs and labels.

1.2 RELATED REQUIREMENTS

- A. Section 09900 – Paints and Coatings.
- B. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
- C. Section 26 2726 - Wiring Devices - Lutron: Device and wallplate finishes; factory pre-marked wallplates.

1.3 REFERENCE STANDARDS

- A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs 2011.
- B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels 2011.
- C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. NFPA 70E - Standard for Electrical Safety in the Workplace 2018.
- E. UL 969 - Marking and Labeling Systems Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

1.5 Sequence:

- A. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
 - 1. Do not install identification products until final surface finishes and painting are complete.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.7 FIELD CONDITIONS

- A. Do not install adhesive products when ambient temperature is lower than recommended by Manufacturer.

PART 2 PRODUCTS

2.1 IDENTIFICATION REQUIREMENTS

- A. Existing Work: Unless specifically excluded, identify existing elements to remain that are not already identified in accordance with specified requirements.
- B. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - 2. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
 - a. Service equipment.
 - b. Industrial control panels.
 - c. Motor control centers.
 - d. Elevator control panels.
 - e. Industrial machinery.
- C. Identification for Conductors and Cables:
 - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 0519.
 - 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
- D. Identification for Raceways:
 - 1. Use voltage markers to identify highest voltage present for accessible conduits at maximum intervals of 20 feet.
 - 2. Use identification labels, handwritten text using indelible marker or plastic marker tags to identify circuits enclosed for accessible conduits at wall penetrations, at floor penetrations, at roof penetrations and at equipment terminations when source is not within sight.

3. Use identification labels, handwritten text using indelible marker, or plastic marker tags to identify spare conduits at each end. Identify purpose and termination location.

E. Identification for Boxes:

1. Use voltage markers to identify highest voltage present.
2. Use voltage markers or color-coded boxes to identify systems other than normal power system.
3. Use identification labels or handwritten text using indelible marker to identify circuits enclosed.

F. Identification for Devices:

1. Wiring Device and Wallplate Finishes: Comply with Section 26 2726.

2.2 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:

1. Materials:
 - a. Indoor Clean, Dry Locations: Use plastic nameplates.
2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
3. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.

B. Identification Labels:

1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

2.3 VOLTAGE MARKERS

A. Markers for Conduits: Use factory pre-printed self-adhesive vinyl, self-adhesive vinyl cloth or vinyl snap-around type markers.

B. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.

C. Minimum Size:

1. Markers for Equipment: 1-1/8 by 4-1/2 inches.
2. Markers for Conduits: As recommended by Manufacturer for conduit size to be identified.
3. Markers for Pull Boxes: 1-1/8 by 4-1/2 inches.
4. Markers for Junction Boxes: 1/2 by 2-1/4 inches.

D. Legend:

1. Markers for Voltage Identification: Highest voltage present.
2. Markers for System Identification:

E. Color: Black text on orange background unless otherwise indicated.

2.4 WARNING SIGNS AND LABELS

A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

B. Warning Signs:

1. Materials:
2. Minimum Size: 7 by 10 inches unless otherwise indicated.

C. Warning Labels:

1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.1 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.2 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:

1. Surface-Mounted Equipment: Enclosure front.
2. Flush-Mounted Equipment: Inside of equipment door.
3. Free-Standing Equipment: Enclosure front; also, enclosure rear for equipment with rear access.
4. Elevated Equipment: Legible from the floor or working platform.
5. Interior Components: Legible from the point of access.
6. Conduits: Legible from the floor.
7. Boxes: Outside face of cover.
8. Conductors and Cables: Legible from the point of access.
9. Devices: Outside face of cover.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

- E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
- F. Mark all handwritten text, where permitted, to be neat and legible.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

SECTION 26 0583

WIRING CONNECTIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical connections to equipment.

1.2 RELATED REQUIREMENTS

- A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.
- B. Section 26 0533.13 - Conduit for Electrical Systems.
- C. Section 26 0533.16 - Boxes for Electrical Systems.
- D. Section 26 2726 - Wiring Devices.

1.3 REFERENCE STANDARDS

- A. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2015).
- B. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2016.
- C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
 - 2. Determine connection locations and requirements.
- B. Sequencing:
 - 1. Install rough-in of electrical connections before installation of equipment is required.
 - 2. Make electrical connections before required start-up of equipment.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Wiring Devices: As specified in Section 26 2726.
- B. Flexible Conduit: As specified in Section 26 0533.13.
- C. Wire and Cable: As specified in Section 26 0519.
- D. Boxes: As specified in Section 26 0533.16.

2.2 EQUIPMENT CONNECTIONS

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Provide receptacle outlet to accommodate connection with attachment plug.
- E. Provide cord and cap where field-supplied attachment plug is required.
- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION

SECTION 26 0923
LIGHTING CONTROL DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Occupancy sensors.
- B. Time switches.

1.2 RELATED REQUIREMENTS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems
- C. Section 26 0533.16 - Boxes for Electrical Systems.
- D. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- E. Section 26 2726 - Wiring Devices: Devices for manual control of lighting, including wall switches, wall dimmers and fan speed controllers.
- F. Section 26 5100 - Interior Lighting.

1.3 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2010.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2018.
- D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 916 - Energy Management Equipment Current Edition, Including All Revisions.
- F. UL 917 - Clock-Operated Switches Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of lighting control devices with millwork, furniture, equipment, etc. installed under other sections or by others.

2. Coordinate the placement of wall switch occupancy sensors with actual installed door swings.
3. Coordinate the placement of occupancy sensors with millwork, furniture, equipment or other potential obstructions to motion detection coverage installed under other sections or by others.
4. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Sequencing:

C. Do not install lighting control devices until final surface finishes and painting are complete.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Include ratings, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.
 1. Occupancy Sensors: Include detailed motion detection coverage range diagrams.
- C. Field Quality Control Reports.
- D. Manufacturer's Installation Instructions: Include application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- E. Operation and Maintenance Data: Include detailed information on device programming and setup.
- F. Project Record Documents: Record actual installed locations and settings for lighting control devices.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND PROTECTION

- A. Store products in a clean, dry space in original manufacturer's packaging in accordance with manufacturer's written instructions until ready for installation.

1.8 FIELD CONDITIONS

- A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.9 WARRANTY

- A. See Section 01001 - For additional warranty requirements.
- B. Provide five-year manufacturer warranty for all occupancy sensors.

PART 2 PRODUCTS

2.1 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide all required conduit, wiring, connectors, hardware, components, accessories, etc. as required for a complete operating system.

2.2 OCCUPANCY SENSORS

- A. All Occupancy Sensors:
 1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
 2. Sensor Technology:
 3. Provide LED to visually indicate motion detection with separate color LEDs for each sensor type in dual technology units.
 4. Operation: Unless otherwise indicated, occupancy sensor to turn load on when occupant presence is detected and to turn load off when no occupant presence is detected during an adjustable turn-off delay time interval.
 5. Turn-Off Delay: Field adjustable, with time delay settings up to 30 minutes.
 6. Compatibility (Non-Dimming Sensors): Suitable for controlling incandescent lighting, low-voltage lighting with electronic and magnetic transformers, fluorescent lighting with electronic and magnetic ballasts, and fractional motor loads, with no minimum load requirements.
- B. Wall Switch Occupancy Sensors:
 1. All Wall Switch Occupancy Sensors:
 - a. Description: Occupancy sensors designed for installation in standard wall box at standard wall switch mounting height with a field of view of 180 degrees, integrated manual control capability, and no leakage current to load in off mode.
 - b. Manual-Off Override Control: When used to turn off load while in automatic-on mode, unit to revert back to automatic mode after no occupant presence is detected during the delayed-off time interval.

2.3 TIME SWITCHES

- A. Manufacturers:
 - 1. Lutron XPS.
 - 2. Tork, a division of NSI Industries LLC
- B. Digital Electronic Time Switches:
 - 1. Description: Factory-assembled solid state programmable controller with LCD display, listed and labeled as complying with UL 916 or UL 917.
 - 2. Program Capability:
 - a. 24-Hour Time Switches: multi-channel, with same schedule for each day of the week and skip-a-day feature to omit selected days.
 - 3. Schedule Capacity: Not less than 16 programmable on/off operations.
 - 4. Provide automatic daylight savings time and leap year compensation.
 - 5. Provide power outage backup to retain programming and maintain clock.
 - 6. Manual override: Capable of overriding current schedule both permanently and temporarily until next scheduled event.
 - 7. Input Supply Voltage: As indicated on the drawings.
 - 8. Provide lockable enclosure; environmental type per NEMA 250 as specified for the following installation locations:

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that openings for outlet boxes are neatly cut and will be completely covered by devices or wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to lighting control devices.
- F. Verify that the service voltage and ratings of lighting control devices are appropriate for the service voltage and load requirements at the location to be installed.
- G. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.3 INSTALLATION

- A. Install lighting control devices in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of lighting control devices provided under this section.
 - 1. Mounting Heights: Unless otherwise indicated, as follows:
 - a. Wall Switch Occupancy Sensors: 48 inches above finished floor.
 - 2. Orient outlet boxes for vertical installation of lighting control devices unless otherwise indicated.
 - 3. Locate wall switch occupancy sensors on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Architect to obtain direction prior to proceeding with work.
- C. Install lighting control devices in accordance with manufacturer's instructions.
- D. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- E. Install lighting control devices plumb and level, and hold securely in place.
- F. Where required and not furnished with lighting control device, provide wall plate in accordance with Section 26 27 26.
- G. Provide required supports in accordance with Section 26 05 29.
- H. Where applicable, install lighting control devices and associated wall plates to fit completely flush to mounting surface with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- I. Identify lighting control devices in accordance with Section 26 05 53.

3.4 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect each lighting control device for damage and defects.
- C. Test occupancy sensors to verify proper operation, including time delays and ambient light thresholds where applicable. Verify optimal coverage for entire room or area. Record test results in written report to be included with submittals.

- D. Test time switches to verify proper operation.
- E. Correct wiring deficiencies and replace damaged or defective lighting control devices.

3.5 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.
- B. Adjust occupancy sensor settings to minimize undesired activations while optimizing energy savings, and to achieve desired function as indicated or as directed by Architect.
- C. Adjust time switch settings to achieve desired operation schedule as indicated or as directed by Architect. Record settings in written report to be included with submittals.

3.6 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.7 CLOSEOUT ACTIVITIES

- A. See Section 01001 - For closeout submittals.
- B. Demonstration: Demonstrate proper operation of lighting control devices to Architect, and correct deficiencies or make adjustments as directed.
- C. Training: Train Owner's personnel on operation, adjustment, programming, and maintenance of lighting control devices.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours of training.
 - 3. Instructor: Qualified contractor familiar with the project and with sufficient knowledge of the installed lighting control devices.
 - 4. Location: At project site.

END OF SECTION

SECTION 26 2416

PANELBOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Overcurrent protective devices for panelboards.

1.2 RELATED REQUIREMENTS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
- C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.3 REFERENCE STANDARDS

- A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service 2013e (Amended 2017).
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NECA 407 - Standard for Installing and Maintaining Panelboards 2015.
- D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2018.
- E. NEMA PB 1 - Panelboards 2011.
- F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less 2013.
- G. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- K. UL 67 - Panelboards Current Edition, Including All Revisions.

- L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
 - 4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.
 - 1. Include characteristic trip curves for each type and rating of overcurrent protective device upon request.
- C. Maintenance Data: Include information on replacement parts and recommended maintenance procedures and intervals.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01001 - Product Requirements, for additional provisions.
 - 2. Panelboard Keys: Two of each different key.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.

- B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
- C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.

1.8 FIELD CONDITIONS

- A. Maintain ambient temperature within the following limits during and after installation of panelboards:
 - 1. Panelboards Containing Circuit Breakers: Between 23 degrees F and 104 degrees F.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Match existing.
- B. Source Limitations: Furnish panelboards and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.2 PANELBOARDS - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
 - 1. Altitude: Less than 6,600 feet.
 - 2. Ambient Temperature:
- C. Short Circuit Current Rating:
- D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.
- F. Bussing: Sized in accordance with UL 67 temperature rise requirements.
 - 1. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.
- G. Conductor Terminations: Suitable for use with the conductors to be installed.
- H. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.

1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
2. Boxes: Galvanized steel unless otherwise indicated.
 - a. Provide wiring gutters sized to accommodate the conductors to be installed.
3. Fronts:
4. Lockable Doors: All locks keyed alike unless otherwise indicated.

- I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

2.3 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:

1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
2. Interrupting Capacity:
 - a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
 - 1) 14,000 rms symmetrical amperes at 480 VAC.
 - b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
3. Conductor Terminations:
 - a. Provide mechanical lugs unless otherwise indicated.
 - b. Provide compression lugs where indicated.
 - c. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
 - a. Provide field-adjustable magnetic instantaneous trip setting for circuit breaker frame sizes 225 amperes and larger.
5. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
 - a. Provide the following field-adjustable trip response settings:
 - 1) Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
 - 2) Long time delay.
 - 3) Short time pickup and delay.
 - 4) Instantaneous pickup.
6. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

2.4 SOURCE QUALITY CONTROL

A. See Section 01001 - Quality Requirements, for additional requirements.

B. Factory test panelboards according to NEMA PB 1.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive panelboards.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.
- D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- E. Provide required support and attachment in accordance with Section 26 0529.
- F. Install panelboards plumb.
- G. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches above the floor or working platform.
- H. Provide grounding and bonding in accordance with Section 26 0526.
- I. Install all field-installed branch devices, components, and accessories.
- J. Set field-adjustable circuit breaker tripping function settings as indicated.
- K. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.
- L. Provide filler plates to cover unused spaces in panelboards.

3.3 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1. Tests listed as optional are not required.

D. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.4 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 20 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

3.5 CLEANING

A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wall switches.
- B. Wall dimmers.
- C. Receptacles.
- D. Wall plates.

1.2 RELATED REQUIREMENTS

- A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Manufactured wiring systems for use with access floor boxes with compatible pre-wired connectors.
- B. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- C. Section 26 0533.16 - Boxes for Electrical Systems.
- D. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- E. Section 26 0583 - Wiring Connections: Cords and plugs for equipment.

1.3 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2010.
- C. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2015).
- D. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2016.
- E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 20 - General-Use Snap Switches Current Edition, Including All Revisions.
- G. UL 498 - Attachment Plugs and Receptacles Current Edition, Including All Revisions.

- H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices Current Edition, Including All Revisions.
- I. UL 943 - Ground-Fault Circuit-Interrupters Current Edition, Including All Revisions.
- J. UL 1472 - Solid-State Dimming Controls Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
 - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
 - 4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
 - 5. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.
- B. Sequencing:
 - 1. Do not install wiring devices until final surface finishes and painting are complete.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.
 - 1. Wall Dimmers: Include derating information for ganged multiple devices.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Operation and Maintenance Data:
 - 1. Wall Dimmers: Include information on operation and setting of presets.
 - 2. GFCI Receptacles: Include information on status indicators.
- E. Project Record Documents: Record actual installed locations of wiring devices.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum of three years documented experience.
- D. Products: Listed, classified, and labeled as suitable for the purpose intended.
- E. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND PROTECTION

- A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.1 WIRING DEVICE APPLICATIONS

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.
- D. Provide GFCI protection for receptacles installed within 6 feet of sinks.
- E. Provide GFCI protection for receptacles installed in kitchens.
- F. Provide GFCI protection for receptacles serving electric drinking fountains.
- G. Unless noted otherwise, do not use combination switch/receptacle devices.

2.2 WIRING DEVICE FINISHES

- A. Provide wiring device finishes as described below unless otherwise indicated.
- B. Wiring Devices, Unless Otherwise Indicated: White with white nylon wall plate.
- C. Wiring Devices Installed in Finished Spaces: White with white nylon wall plate.
- D. Wiring Devices Installed in Wet or Damp Locations: White with specified weatherproof cover.

2.3 WALL SWITCHES

- A. Manufacturers:
 - 1. Hubbell Incorporated; www.hubbell.com.
 - 2. Leviton Manufacturing Company, Inc; www.leviton.com.
 - 3. Pass & Seymour, a brand of Legrand North America, Inc; www.legrand.us.
- B. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.
- C. Standard Wall Switches: Industrial specification grade, 20 A, 120/277 V with standard toggle type switch actuator and maintained contacts; single pole single throw, double pole single throw, three way or four way as indicated on the drawings.
- D. Lighted Wall Switches: Industrial specification grade, 20 A, 120/277 V with illuminated standard toggle type switch actuator and maintained contacts; illuminated with load off; single pole single throw, double pole single throw, three way or four way as indicated on the drawings.

2.4 WALL DIMMERS

- A. Manufacturers:
 - 1. Leviton Manufacturing Company, Inc; www.leviton.com.
 - 2. Lutron Electronics Company, Inc; Maestro Series: www.lutron.com/#sle.
 - 3. Pass & Seymour, a brand of Legrand North America, Inc; www.legrand.us.
- B. Wall Dimmers - General Requirements: Solid-state with continuous full-range even control following square law dimming curve, integral radio frequency interference filtering, power failure preset memory, air gap switch accessible without removing wall plate, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 1472; types and ratings suitable for load controlled as indicated on the drawings.
- C. Control: Digital fade type with tap on/off control and touch preset adjustment.
- D. Provide locator light, illuminated with load off.
- E. Provide accessory wall switches to match dimmer appearance when installed adjacent to each other.

2.5 RECEPTACLES

- A. Manufacturers:
 - 1. Hubbell Incorporated; www.hubbell.com.
 - 2. Leviton Manufacturing Company, Inc; www.leviton.com.
 - 3. Lutron Electronics Company, Inc; Designer Style: www.lutron.com.
 - 4. Pass & Seymour, a brand of Legrand North America, Inc; www.legrand.us.
 - 5. Substitutions: See Section 00100 - Product Substitutions.

- 6. Source Limitations: Where wall controls are furnished as part of lighting control system, provide accessory matching receptacles and wallplates by the same manufacturer in locations indicated.
- B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
 - 2. NEMA configurations specified are according to NEMA WD 6.
- C. Convenience Receptacles:
 - 1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
 - 2. Weather Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations; single or duplex as indicated on the drawings.
 - 3. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.
 - 4. Tamper Resistant and Weather Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type and as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations; single or duplex as indicated on the drawings.
- D. GFCI Receptacles:
 - 1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
 - a. Provide test and reset buttons of same color as device.
 - 2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.

2.6 WALL PLATES

- A. Manufacturers:
 - 1. Hubbell Incorporated; www.hubbell-wiring.com.
 - 2. Leviton Manufacturing Company, Inc; www.leviton.com.
 - 3. Lutron Electronics Company, Inc; www.lutron.com.
 - 4. Pass & Seymour, a brand of Legrand North America, Inc; www.legrand.us.
 - 5. Source Limitations: Where wall controls are furnished as part of lighting control system, provide accessory matching receptacles and wallplates by the same manufacturer in locations indicated.
- B. Wall Plates: Comply with UL 514D.
 - 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
 - 2. Size: Standard.

3. Screws: Metal with slotted heads finished to match wall plate finish.
- C. Stainless Steel Wall Plates: Brushed satin finish, Type 302 stainless steel.
- D. Weatherproof Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- F. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.3 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.
 1. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
 2. Where multiple receptacles, wall switches or wall dimmers are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
 3. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.

- C. Install wiring devices in accordance with manufacturer's instructions.
- D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
- F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- H. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.
- I. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- J. Install wall switches with OFF position down.
- K. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
- L. Do not share neutral conductor on branch circuits utilizing wall dimmers.
- M. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- N. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- O. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.4 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect each wiring device for damage and defects.
- C. Operate each wall switch, wall dimmer and fan speed controller with circuit energized to verify proper operation.
- D. Test each receptacle to verify operation and proper polarity.

E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.5 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

B. Adjust presets for wall dimmers according to manufacturer's instructions as directed by Architect.

3.6 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 5100

INTERIOR LIGHTING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Interior luminaires.
- B. Emergency lighting units.
- C. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 26 0529 - Hangers and Supports for Electrical Systems.
- B. Section 26 0533.16 - Boxes for Electrical Systems.
- C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 26 0923 - Lighting Control Devices: Automatic controls for lighting including occupancy sensors, outdoor motion sensors, time switches, outdoor photo controls and daylighting controls.
- E. Section 26 2726 - Wiring Devices: Manual wall switches and wall dimmers.

1.3 REFERENCE STANDARDS

- A. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products 2008.
- B. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules 2015, with Errata (2017).
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- D. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems 2006.
- E. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems 2006.
- F. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility 2012.
- G. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

- H. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 924 - Emergency Lighting and Power Equipment Current Edition, Including All Revisions.
- J. UL 1598 - Luminaires Current Edition, Including All Revisions.
- K. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
 - 2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 - 3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
 - 4. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.5 SUBMITTALS

- A. See Section 01001 - For submittal procedures.
- B. Shop Drawings:
 - 1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
 - 2. Provide photometric calculations where luminaires are proposed for substitution upon request.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 - b. Include IES LM-79 test report upon request.
- D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

- E. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01001 - Product Requirements, for additional provisions.
- G. Project Record Documents: Record actual connections and locations of luminaires and any associated remote components.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND PROTECTION

- A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting), NECA/IESNA 502 (industrial lighting) and manufacturer's written instructions.
- B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.8 FIELD CONDITIONS

- A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.9 WARRANTY

- A. See Section 01001 - For additional warranty requirements.
- B. Provide three-year manufacturer warranty for LED luminaires, including drivers.

PART 2 PRODUCTS

2.1 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.2 LUMINAires

- A. Provide products that comply with requirements of NFPA 70.

- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.3 EMERGENCY LIGHTING UNITS

- A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- C. Battery:
 - 1. Sealed maintenance-free lead calcium unless otherwise indicated.
 - 2. Size battery to supply all connected lamps, including emergency remote heads where indicated.
- D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
- E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.4 DRIVERS

- A. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.

2. Control Compatibility: Fully compatible with the dimming controls to be installed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.3 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install products in accordance with manufacturer's instructions.
- D. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).
- E. Provide required support and attachment in accordance with Section 26 05 29.
- F. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- G. Suspended Ceiling Mounted Luminaires:
 1. Do not use ceiling tiles to bear weight of luminaires.
 2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
 3. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.

4. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

H. Recessed Luminaires:

1. Install trims tight to mounting surface with no visible light leakage.
2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.

I. Suspended Luminaires:

1. Install using the suspension method indicated, with support lengths and accessories as required for specified mounting height.
2. Provide minimum of two supports for each luminaire equal to or exceeding 4 feet nominal length, with no more than 4 feet between supports.

J. Install accessories furnished with each luminaire.

K. Bond products and metal accessories to branch circuit equipment grounding conductor.

L. Emergency Lighting Units:

1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
2. Install lock-on device on branch circuit breaker serving units.

M. Exit Signs:

1. Unless otherwise indicated, connect unit to unswitched power from circuit indicated. Bypass local switches, contactors, or other lighting controls.
2. Install lock-on device on branch circuit breaker serving units.

N. Install lamps in each luminaire.

3.4 FIELD QUALITY CONTROL

- A. See Section 01001 - Quality Requirements, for additional requirements.
- B. Inspect each product for damage and defects.
- C. Operate each luminaire after installation and connection to verify proper operation.
- D. Test self-powered exit signs, emergency lighting units and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.
- E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.5 ADJUSTING

- A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.
- B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Architect or authority having jurisdiction.
- C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Architect or authority having jurisdiction.

3.6 CLEANING

- A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting) and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.7 CLOSEOUT ACTIVITIES

- A. See Section 01001 - For closeout submittals.
- B. Demonstration: Demonstrate proper operation of luminaires to Architect, and correct deficiencies or make adjustments as directed.
- C. Just prior to Substantial Completion, replace all lamps that have failed.

3.8 PROTECTION

- A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

SECTION 28 3100
FIRE ALARM SYSTEM MODIFICATIONS

PART 1 GENERAL

1.1 SUMMARY OF WORK

- A. This Section includes modifications, extensions, reprogramming, and integration of the existing addressable fire alarm system as required for this project.
- B. Work includes furnishing labor, materials, devices, programming, testing, and certification necessary to provide a complete, fully operational modification to the existing fire alarm system.
- C. The Contractor shall be fully responsible for investigation of the existing system, compatibility of new devices, system layout, programming, testing, and approval by the Authority Having Jurisdiction (AHJ).
- D. Existing fire alarm system shall remain operational during construction except where temporary shutdowns are approved in advance by the Owner and AHJ.
- E. All new work shall be fully integrated with the existing system and shall not degrade existing system performance.

1.2 EXISTING SYSTEM CONDITIONS

- A. Existing system is an addressable fire alarm system.
- B. Contractor shall verify manufacturer, model, firmware revision, capacity, available spare points, and condition of existing equipment prior to submittals.
- C. Any deficiencies or incompatibilities discovered shall be reported immediately to the Architect and Owner.

1.3 BASIS OF DESIGN

- A. Modify and extend the existing addressable Fire Alarm Control Panel (FACP) located near the electrical service entrance.
- B. Modify or add remote annunciators as required.
- C. Provide additional manual pull stations, initiating devices, notification appliances, and control interfaces as required by code and drawings.
- D. Provide audibility and visual notification coverage in all areas affected by the work.

- E. Provide smoke and heat detection as required for modified spaces.
- F. Maintain a minimum of 20 percent spare capacity on all new circuits and addressable loops.
- G. Coordinate all fire alarm interfaces with HVAC, fire/smoke dampers, elevators, doors, and fire suppression systems.
- H. Provide all required sprinkler system monitoring and supervision devices affected by the work.
- I. Provide all required power supplies, wiring, and conduit associated with the modifications.

1.4 SUBMITTALS

- A. Product data and catalog cuts for all new equipment.
- B. Floor plans showing new and existing devices, circuit routing, conductor quantities, and device addressing.
- C. Updated riser diagrams indicating modified circuits, modules, and interfaces.
- D. Programming narrative describing all changes to system logic and sequence of operations.
- E. Submittals shall be complete and coordinated; partial submittals will not be reviewed.

1.5 AS-BUILT DOCUMENTATION

- A. Updated floor plans reflecting final device locations.
- B. Updated riser diagrams and wiring schematics.
- C. Updated sequence of operations.
- D. Provide two printed sets and one digital copy.

1.6 CODES AND STANDARDS

- A. Comply with NFPA 72 (current adopted edition).
- B. Comply with National Electrical Code (NEC).
- C. All equipment shall be UL listed for fire protective signaling systems.
- D. Comply with all requirements of the AHJ.

1.7 FIRE ALARM SYSTEM SUBCONTRACTOR

- A. Fire alarm work shall be performed by a single qualified Fire Systems Subcontractor (FSS).
- B. FSS shall be an authorized distributor of the existing system manufacturer.
- C. FSS shall employ NICET Level II certified personnel minimum.
- D. FSS shall be responsible for installation, programming, testing, documentation, and warranty service.

1.8 SYSTEM DESCRIPTION

- A. Addressable, electrically supervised, closed-circuit fire alarm system.
- B. New devices and modules shall be compatible with existing system components.
- C. All equipment shall be of the same manufacturer as the existing system unless approved otherwise.

1.9 ACCEPTABLE MANUFACTURERS

- A. Match existing system manufacturer.
- B. Acceptable manufacturers include Notifier or Simplex (subject to verification of existing system).

PART 2 PRODUCTS

2.1 GENERAL

- A. All new components shall be fully compatible with the existing fire alarm control equipment.
- B. Provide only manufacturer-listed devices approved for use with the existing system.

2.2 CONTROL PANEL AND POWER SUPPLIES

- A. Modify existing FACP programming as required.
- B. Provide additional power supplies, NAC extenders, or batteries as necessary to support added loads.
- C. Batteries shall support 24 hours standby plus 5 minutes alarm.

2.3 ADDRESSABLE DEVICES

- A. Manual pull stations: addressable, supervised, key-reset type.
- B. Smoke detectors: intelligent, addressable photoelectric type.
- C. Heat detectors: intelligent, addressable type.
- D. Duct detectors: addressable with remote test/reset where required.
- E. Monitor and control modules as required for interfacing with existing systems.

2.4 NOTIFICATION APPLIANCES

- A. Horn/strobe and strobe-only devices shall comply with NFPA 72 and ADA.
- B. Synchronization shall be maintained with existing notification appliances.
- C. Candela ratings shall be as required by code.

2.5 AUXILIARY DEVICES

- A. Relays for HVAC shutdown, door holders, dampers, elevators, and suppression systems shall be provided as required.
- B. All interfaces shall be supervised.

2.6 WIRING

- A. All new wiring shall be installed in conduit.
- B. Conductors shall be color coded and labeled to match existing system conventions.
- C. Existing wiring reused only where approved and in good condition.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install all new devices in accordance with manufacturer's instructions and NFPA 72.
- B. Coordinate work to maintain continuous fire protection.

3.2 PROGRAMMING

- A. Modify system programming to incorporate new devices and sequences of operation.
- B. Existing logic shall remain intact unless otherwise noted.

3.3 TESTING AND ACCEPTANCE

- A. Perform complete functional testing of all modified and affected portions of the system.
- B. Conduct reacceptance testing in accordance with NFPA 72.
- C. Provide written test reports.

3.4 TRAINING

- A. Provide up to 8 hours of owner training on modified system operation.
- B. Provide updated written sequence of operation and troubleshooting guide.

3.5 CERTIFICATION

- A. System modifications shall be certified by a NICET Level II Fire Alarm Technician minimum.
- B. Provide written certification of compliance and proper operation prior to final acceptance.

END OF SECTION