PROJECT MANUAL
FOR

City of Aurora Project #: 20-02

CITY CLERK & BUDGET DEPARTMENT INTERIOR RENOVATIONS
44 E. DOWNER PLACE
AURORA, ILLINOIS 60507

OWNER

44 E. DOWNER PLACE
AURORA, ILLINOIS 60507

ARCHITECT

KLUBER ARCHITECTS + ENGINEERS
10 S. SHUMWAY AVE.
BATAVIA, ILLINOIS 60510

BIDS DUE
WEDNESDAY, MARCH 11, 2020 AT 2:00 P.M.
CITY OF AURORA CITY CLERK'S OFFICE
44 E. DOWNER PLACE
AURORA, ILLINOIS 60507

DATE: FEBRUARY 14, 2020
PROJECT NO. 19-130-1267

SECTION 00 01 01
PROJECT TITLE PAGE

PROJECT MANUAL

FOR

CITY OF AURORA - CITY CLERK AND BUDGET DEPARTMENT RENOVATION

44 E. DOWNER PLACE

AURORA, ILLINOIS 60507

OWNER

CITY OF AURORA

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SECTION 00 01 07
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END OF DOCUMENT

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ADVERTISEMENT FOR BIDS

City of Aurora Invitation to Bid attached (Two Pages).

END OF DOCUMENT

Purchasing Division | Finance Department

INVITATION TO BID
20-02
CITY CLERK & BUDGET DEPARTMENT INTERIOR RENOVATION
FOR THE CITY OF AURORA

Sealed bids will be received at the office of the City Clerk, 44 East Downer Place, Aurora, Illinois 60507, until 2:00 p.m., Wednesday, March 11, 2020 for the City Clerk & Budget Department Interior Renovation located at 44 East Downer Place, Aurora, Illinois 60507.

The proposed work consists of demolition of existing ceilings, interior walls, floor coverings, mechanical, plumbing and electrical components as required for the proposed renovations. New work includes open office space, private offices, new ceilings, floor coverings, new lighting system and new mechanical system. The work will cover an area of approximately 1,500 square feet.

Attached please find specifications and other pertinent documents necessary for you to respond to this bid invitation.

Drawings and Specifications and other pertinent documents may be obtained online at https://www.aurora-il.org/bids.aspx by calling the Purchasing Office during normal business hours 630-256-3550.

The Bidding Documents may also be examined at the Architect's office, Kluber, Inc., 10 S. Shumway Avenue, Batavia, IL 60510.

A **mandatory pre-bid meeting** will be held Tuesday, February 25, 2020 from 10:00 a.m. to 11:00 a.m. All bidders should meet at 44 East Downer Place, **Second Floor, City Council Chambers**, Aurora, Illinois 60507. **Bidders must be present at the start of the meeting to qualify to bid on the project.**

Questions regarding the bids are to be sent to the Director of Purchasing at PurchasingDL@aurora-il.org. All questions must be submitted in writing via e-mail by 8:00 a.m., Friday, February 28, 2020. Questions will be answered via bid addendum to be sent to those in attendance at the pre-bid meeting by 5:00 p.m., Tuesday, March 3, 2020. **Except at the pre-bid meeting, NO questions will be accepted or answered verbally. No questions will be accepted or answered after Friday, February 28, 2020 at 8:00 a.m. cut-off date/time.**

It is the responsibility of the interested bidder to ensure they have received addendum, if any issued, and acknowledge such receipt where indicated.

A bid bond or a certified check payable to the City of Aurora in the amount of 10% of the bid price is required with the bid presented. A 100% performance and payment bond will be required from the successful Bidder.

The City of Aurora encourages minority business firms to submit bids and encourages the successful firm to utilize minority businesses as applicable.

Any Bidder who owes the City money may be disqualified at the City's discretion.

The City of Aurora has a local preference ordinance that would apply to this contract.

Sufficient proof of liability and workmen's compensation insurance must be furnished to satisfy requirements of the City of Aurora.

When required by State Law, please be advised that all Bids must comply with the Illinois Prevailing Wage Act and the Prevailing Rate of Hourly Wages in the City of Aurora where the Work is to be performed is to be paid to all persons on the project.

The successful respondent shall comply with all codes, ordinances, rules, statutes, laws and regulations of the City of Aurora, State of Illinois as they apply to all Public Works construction projects.

The City of Aurora reserves the right at any time and for any reason to cancel this Invitation to Bid, to accept or reject any or all Bids or portion thereof, or accept an alternate bid. The City reserves the right to waive any immaterial defect in any bid, or technicality, informality or irregularity in the bids received, and to disregard all nonconforming or conditional bids or counter-proposals. Unless otherwise specified by the bidder or the City, the City reserves the right to hold the best bids for ninety (90) days from the opening date set forth above. The City may seek clarification from any bidder at any time and failure to respond promptly is cause for rejection. The City further reserves the right to award the bid to the lowest responsible Bidder whose offer best responds in quality, fitness and capacity to the requirements of the proposed work or usage and therefore is in the best interest of the City.

CITY OF AURORA

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

1.01 FORM OF INSTRUCTIONS TO BIDDERS

A. AIA Document A701 (1997 Edition) - Instructions To Bidders is hereby made part of the Bidding Requirements to the same extent as if written out in full.

B. The above document may be examined at the Architect/Engineer's office or purchased at the American Institute of Architects, http://www.aia.org.

C. City of Aurora Instructions to Bidders attached (14 pages).

END OF DOCUMENT

CITY OF AURORA, ILLINOIS
INSTRUCTIONS TO BIDDERS

01. REQUIREMENTS OF BIDDER

The successful Bidder may be required to (a) enter into a fully signed contract in writing with the City of Aurora covering matters and things as are set forth in the Bid Package; (b) execute a bond necessary for surety acceptable to the City of Aurora in the amount of one hundred percent (100%) of the full contract price and to be conditioned for the faithful fulfillment of the contract for the payment of all labor and materials used in the Work and to include the protection of the City from all liens and damages arising out of the Work; (c) carry insurance acceptable to the City covering public liability, property damage and workers compensation; and (d) pay workers in accordance with the schedule of prevailing wages for Kane County attached hereto.

02. ACCEPTANCE OF BIDS

a. Bidder must submit an original bid response, marked as "original" and one (1) complete paper copies and one (1) PDF copy on a CD, and shall have provided all requested information, and submitted all appropriate forms, certificates, affidavits and addendum acknowledgements in each copy in order to be considered responsive.

b. Bids must be submitted on the forms provided and all information and certifications called for must be furnished. Bids submitted in any other manner, or which fail to furnish all information or certificates required, may be summarily rejected. Bids may be modified or withdrawn prior to the time specified for the opening of bids. Bids shall be filled out legibly in ink or type-written with all erasures, strike overs and corrections initialed in ink by the person signing the bid. The bid shall include the legal name of the bidder, the complete mailing address, and be signed in ink by a person or persons legally authorized to bind the bidder to a contract. Name of person signing should be typed or printed below the signature.

   Envelopes containing bids must be sealed and addressed to the City of Aurora City Clerk. The name and address of the bidder and the Invitation Number must be shown in the upper left corner of the envelope.

c. The City of Aurora reserves the right at any time and for any reason to accept or reject any or all Bids or portion thereof, or accept an alternate bid. The City reserves the right to waive any immaterial defect in any bid, or technicality, informality or irregularity in the bids received, and to disregard all nonconforming or conditional bids or counter-proposals. Unless otherwise specified by the bidder or the City, the City reserves the right to hold the best bids for ninety (90) days from the opening date. Bidder agrees to accept a notice of award, if selected, based on the terms of this Bid Proposal in the event that a notification of award is received on or before expiration of the 90-day time period. The City reserves the

right to cancel the Bid Proposal at any time, without liability for any loss, damage, cost or expense incurred or suffered by any Bidder as a result of that cancellation. Each Bidder is solely responsible for the risk and cost of preparing and submitting a Bid Proposal.

d. Although price is a consideration, qualifications and experience, capacity to handle the work, and response to the bid, will also be considered. No Bid Proposal will be considered unless the Bidder shall furnish evidence satisfactory to the City that he has the necessary facilities, abilities, experience, equipment, and financial and physical resources available to fulfill the conditions of the contract and execute the Work should the contract be awarded to them. Bid Proposal documents which are not responsive to the requirements herein may not be considered by the City for an award of the contract.

The contract will be awarded to the lowest responsive responsible Bidder. In determining the responsibility of any Bidder, the City may take into account other factors such as past records of its or other entities transactions with the Bidder, experience, ability to work cooperatively with the City and its staff, adequacy of equipment, ability to complete performance within necessary time limits, and other pertinent considerations such as, but not limited to, reliability, reputation, competency, skill, efficiency, facilities and resources.

The Bidder will be awarded in the City's best interests based on these and other legally-allowable considerations. The City and its representatives and agents may make any investigations deemed necessary to determine the ability of the Bidder to perform the Work. The Bidder shall furnish any information and data requested by the City for this purpose.

03. RECEIPT OF BIDS

a. It is suggested that respondents allow a minimum of four (4) days for delivery through U.S. mail, or Bids may be delivered to the Office of the City Clerk in person. Overnight courier is acceptable provided timely receipt of Bids. The Bidder assumes responsibility for late delivery of the mail. It is the sole responsibility of the Bidder to see that his Bid is received in the proper time.

b. Any Bid received by the Office of the City Clerk after 2:00 p.m. on Wednesday, March 11, 2020 shall be rejected.

04. WITHDRAWAL OF BIDS

Bidders are cautioned to verify their bids before submission. Negligence on the part of the bidder in preparing the bid confers no right for withdrawal or modification of the bid after it has been opened. Bidders may not withdraw their bid after the opening without the approval of the Director of Purchasing. Requests to withdraw a bid must be in writing and properly signed. Bidders may, however, without prejudice, modify or withdraw its bid by written request, provided that the request is received by the City Clerk prior to the scheduled opening and at the address to which bid proposals were to be submitted. Following withdrawal or modification of its Bid Proposal, Bidder may submit a new Bid Proposal, provided it is received by the City Clerk prior to the bid proposal due date. No

bid proposal will be opened which is received after the time and date scheduled for the Bid Proposals to be received.

05. BID DEPOSIT

Each Bidder shall deposit with his Bid a Bid guarantee consisting of a bank draft, Bid bond, cashier's check, or certified check drawn on a good and solvent National or State Bank and payable to the order of the City, in an amount not less than ten percent (10%) of the total amount of the Bid submitted, as a guaranty that in case the Bidder's Bid is accepted, the Bidder shall within one day after the date of such acceptance and notification thereof, deliver to the City a contract signed and executed by the Bidder, proper insurance certificates and a Performance and Payment Bond in one hundred percent of the contract sum furnished by a responsible bonding company acceptable to and written upon forms prepared or approved by the City as security for payment of labor and materials and for the faithful performance of the contract and compliance with the provisions of law relating to the payment of prevailing rate of wages. All Bid deposits will be retained by the City until a Bid award is made, at which time the Bid deposit will be promptly returned to the unsuccessful Bidders. The Bid deposit of the successful Bidder will be retained until the equipment, goods or services have been received or completed and found to be in compliance with the specifications. Performance by the Bidder shall not be considered complete, until final inspection and acceptance by the City of the Bidder's Work. Final inspection shall occur within 30 days after the actual completion of the Work. Execution of the contract is contingent upon receipt of an acceptable Performance and Payment Bond and any required certificates of insurance. Upon failure to meet the requirements of this paragraph, the Bidder shall forfeit the amount deposited as liquidated damages and no mistakes or errors on the part of the Bidder shall excuse the Bidder or entitle him to a return of the aforementioned amount.

06. BOND AND INSURANCE

The Bidder will be required to furnish a Performance and Payment Bond in the amount of one hundred percent (100%) of the full contract price, Public Liability Insurance, and Workers Compensation Insurance; all of which shall be acceptable to the City of Aurora.

The Bidder awarded the project will need to provide performance and payment bonds for one year with a letter attached from the bond company certifying that the bond may be automatically renewed for the second year.

The term Payment Bond shall be understood to mean the bond executed by the Bidder and his surety guaranteeing the payment of all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished to such principal for the purpose of performing the contract work.

The term Performance Bond shall be understood to mean the bond, executed by the contractor and his surety, guaranteeing complete execution of the contract.

Proof of liability insurance coverage through a reputable, recognized carrier shall be provided at the time of acceptance and signing of the contract and shall remain current for the duration of the contract.

The City of Aurora, by showing and substantiating sufficient proof of incompetence, negligence, poor or substandard workmanship which would cause unwarranted damage or deterioration of either premises, contents or appendages, reserves the right to terminate said Contractor without recourse from the City by successful Contractor.

07. CITY'S AGENT

The Director of Purchasing, or his delegate, shall represent and act for the City in all matters pertaining to the Bid proposal and contract in conjunction thereto.

08. INVESTIGATION

It shall be the responsibility of the Bidders to make any and all investigations necessary to become thoroughly informed of what is required and specified in the Bid. No plea of ignorance by the Bidders of conditions that exist or may hereafter exist as a result of failure or omission on the part of the Bidder to make the necessary examinations and investigations will be accepted as a basis for varying the requirements of the City of the compensation to the Bidder.

Each Bidder submitting a Bid is responsible for examining the complete Bid Package and all Addenda, and is also responsible for informing itself of all conditions that might in any way affect the cost or the performance of any Work. Failure to do so will be at the sole risk of the Bidder, and no relief will be given for errors or omissions by the Bidder. If awarded the contract, the Bidder will not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder should have fully informed himself, because of his failure to have so informed himself prior to the bidding. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such examination as is required in this section and that the Bidder is conversant with local facilities and difficulties, the requirements of the Bid Package documents, and of pertinent, local, state and federal laws and codes, prevailing local labor and material markets, and has made due allowance in its Bid for all contingencies. Before any award is made of the contract to the Bidder, the Bidder may be required to, upon request of the City, furnish information concerning his performance record in his capacity to complete the Work in an efficient and timely manner.

09. BIDDER CAPABILITY

The City reserves the right to require of the Bidder proof of his/her capability to perform as required by the specifications. However, prequalification of the Bidder shall not be required. The City may, at its option, disqualify a Bidder and reject his proposal for cause. Reasons deemed sufficient for this action shall include, but not be limited to, the following:

- Evidence of collusion among bidders.
- Receipt of more than one bid proposal on any project from an individual, or from a corporation. This restriction does not apply to subcontractors.
- Default on any previous contract.

- Unreasonable failure to complete a previous contract within the specified time or for being in arrears on an existing contract without reasonable cause for being in arrears.
- Inability to perform as revealed by an investigation of the Proposer's financial statement, experience and/or plant and equipment.
- **Any proposer who owes the city money may be disqualified at the City's discretion.**

10. AWARD OF BID

It is the intent of the City to award a contract to the lowest responsive responsible bidder meeting specifications. The City reserves the right to determine the lowest responsive responsible bidder on the basis of an individual item, groups of items, or in any way determined to be in the best interests of the City. Award will be based on the following factors, but not limited to (where applicable): (a) adherence to all conditions and requirements of the bid specifications; (b) price; (c) qualifications of the bidder, including past performance, financial responsibility, general reputation, experience, service capabilities, and facilities; (d) delivery or completion date; (e) product appearance, workmanship, finish, taste, feel, overall quality, and results of product testing; (f) maintenance costs and warranty provisions; and (g) repurchase or residual value.

However, if the Bidder modifies limits, restricts or subjects his bid proposal to conditions that would change the requirements of the bid, this would be considered a conditional or qualified Bid Proposal and will not be accepted. The City reserves the right to delete any item listed in the bid.

11. PRICES

The price quoted for each item is the full purchase price, including delivery to destination and includes all transportation and handling charges, premiums on bonds, material or service costs and all other overhead charges of every kind and nature. Unless otherwise specified, prices shall remain firm for the contract period.

Unit prices shall not include any local, state or federal taxes. In case of mistake in extension of price, unit price shall govern. All prices must be typewritten or written in black ink. (The party signing the Bid Proposal or his/her authorized representative must initial any alteration in ink.)

12. DISCOUNTS

Prices quoted must be net after deducting all trade and quantity discounts. Where cash discounts for prompt payment are offered, the discount period shall begin with the date of receipt of a correct invoice or receipt or final acceptance of goods, whichever is later.

13. PAYMENT

Payment shall be made for services rendered. The City, after inspection and acceptance, and in consideration of the faithful performance by the Bidder, agrees to pay for the completion of the work embraced in this Contract, payment shall be made in accordance with the Illinois Local Government Prompt Payment Act (50 ILCS 505/1, *et. seq*.) upon receipt of the invoice.

Time, in connection with any discount offered, will be computed from the date of delivery to the City or from the date a correct invoice is received by the City of Aurora Purchasing Division, if the latter date is later than the date of delivery.

Prices will be considered NET, if no payment discount is shown.

The successful Bidder shall submit invoices via e-mail to:

PurchasingDL@aurora-il.org

or Fax to **630-256-3559**

or Mail to the following address:

City of Aurora
Attn: Purchasing Division
44 E. Downer Place
Aurora, IL 60507

The City of Aurora offers electronic funds transfer (EFT) payment to our vendors. EFT is fast, simple, safe and secure and is ***our preferred method of payment!*** An authorization agreement form is included in this bid proposal package for your use and convenience.

14. TAXES

The City of Aurora is exempt, by law, from paying State and City Retailer's Occupation Tax, State Service Occupation Tax, State Use Tax and Federal Excise Tax upon City works and purchases. The City of Aurora's Sales Tax Exemption Number is E9996-0842-07.

15. DEFAULT

Time is of the essence of this contract and if delivery of acceptable items or rendering of services is not completed by the time promised, the City reserves the right, without liability, in addition to its other rights and remedies, to terminate the contract by notice effective when received by Bidder, as to stated items not yet shipped or services not yet rendered The City will procure articles or service from other sources and hold the Bidder responsible for any excess cost incurred as provided for in Article 2 of the Uniform Commercial Code.

16. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

Bidders shall promptly notify the City of any ambiguity, inconsistency of error which they may discover upon examination of the bidding documents. Interpretations, corrections and changes will be made by addendum. Each bidder shall ascertain prior to submitting a bid that all addenda have been received and acknowledged in the bid.

17. INSPECTION

Materials or equipment purchased are subject to inspection and approval at the City's destination. The City reserves the right to reject and refuse acceptance of items which are not in accordance with the instructions, specifications, drawings or data of Bidder's warranty (express or implied). Rejected materials or equipment shall be removed by, or at the expense of, the Bidder promptly after rejection.

18. WARRANTY

Bidder warrants that all goods and services furnished hereunder will conform in all respects to the terms of the solicitation , including any drawings , specifications or standards incorporated herein, and that they will be free from latent and patent defects in materials, workmanship and title, and will be free from such defects in design . In addition, Bidder warrants that said goods and services are suitable for, and will perform in accordance with, the purposes for which they are purchased, fabricated, manufactured and designed or for such other purposes as are expressly specified in this solicitation. The City may return any nonconforming or defective items to the Bidder or require correction or replacement of the item at the time the defect is discovered, all at the Bidder's risk and expense. Acceptance shall not relieve the Bidder of its responsibility.

Contractor and/or Bidder (as case may be) expressly warrants that all goods and services (real property and all structures thereon) will conform to the drawings, materials, performance and any other specifications, samples or other description furnished by the City, and will be fit and sufficient for the purpose intended, merchantable, of good material and workmanship. Contractor and/or Bidder (as case may be) agrees that these warranties shall run to the City of Aurora, its successor, assigns, customers and users of the products or services and that these warranties shall survive acceptance of the goods or performance of the services.

19. CANCELLATION

The City reserves the right to cancel the whole or any part of the contract if the Bidder fails to perform any of the provisions in the contract or fails to make delivery within the time stated. The Bidder will not be liable to perform if situations arise by reason of strikes, acts of God or public enemy, acts of the City, fires or floods.

20. SIGNATURES

Bid proposals must be signed by the Bidder with his/her usual signature. Bids by partnerships must be signed with the partnership name by all members of the partnership, or an authorized representative, followed by the signature and title of the person signing.

Bids by corporations must be signed with the name of the corporation, followed by the signature and title of the person authorized to bind it in the matter. All signatures must be in ink.

When a corporation submits a Bid, its agent must present legal evidence that he has lawful authority to sign said Bid 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 must present evidence before any contract is executed that it is authorized to do business in the State of Illinois. Bids by corporations must be executed in the corporate name by the President or a Vice President (or other corporate officer accompanied by evidence of authority to sign), and the signature must be attested by the Secretary or an Assistant Secretary, and the corporate seal must be affixed. The corporate address and state of incorporation must be shown below the signature. Bids by partnerships must be executed in the partnership name and signed by a partner whose title must appear under the signature, and the official address of the partnership must be shown below the signature. Any corrections to entries made on the Bid forms shall be initialed by the person signing the Bid. When requested by the City, satisfactory evidence of the authority of any signature on behalf of the Bidder shall be furnished.

21. SPECIAL CONDITIONS

Wherever special conditions are written into the Special Conditions and Specifications which are in conflict with conditions stated in these Instructions to Bidders, the conditions stated in Special Conditions and Specifications shall take precedence.

22. PERMITS AND LICENSES

The successful Bidder shall obtain, at its own expense, all permits and licenses which may be required to complete the contract.

23. REGULATORY COMPLIANCE

Bidder represents and warrants that the goods or services furnished hereunder (including all labels, packages and container for said good) comply with all applicable standards, rules and regulations in effect under the requirements of all Federal, State and local laws, rules and regulations as applicable, including the Occupational Safety and Health Act as amended, with respect to design, construction, manufacture or use for their intended purpose of said goods or services. Bidder shall furnish "Material Safety Data Sheet" in compliance with the Illinois Toxic Substances Disclosure to Employees Act.

24. ROYALTIES AND PATENTS

Bidder shall pay all royalties and license fees. Bidder shall defend all suits or claims for infringement of any patent or trademark rights and shall hold the City harmless from loss on account thereof.

25. REFERENCES

Sufficient references of all like public and/or private agencies must be presented on a

separate sheet and attached to this Bid. Listing must include company name, contact person, telephone number and date purchased. All Bidders, as a condition of and prior to entry into a contract, agree that a complete background investigation of the principals of the Bidder and all employees who will work on the project may be made. Bidders agree to cooperate with the appropriate City of Aurora personnel to supply all information necessary to complete these investigations. The City of Aurora in its complete discretion may disqualify any Bidder, including low Bidder, and may void any contract previously entered into based on its background investigation.

26. ELIGIBILITY

By signing this bid, the bidder hereby certifies that they are not barred from bidding on this contract as a result of a violation of Article 33E, Public Contracts of the Illinois Criminal Code of 1961, as amended (Illinois Compiled Statutes, 720 ILCS 5/33E-1).

27. COMPLIANCE WITH LAWS AND REGULATIONS

The Bidder shall at all times observe and comply with all Federal, State, Municipal and other local laws, ordinances, regulations, and requirements which in any manner affect the conduct of the Work, and with all Federal, State and local laws and policies of non-discrimination, sexual harassment, prevailing wages and others applicable thereto; and all such orders or decrees as exist at the present and which may be enacted later, of bodies or tribunals having jurisdiction or authority over the Work, and no plea of misunderstanding or ignorance thereof will be considered. He shall indemnify and save harmless the City and all its officers, agents, employees and servants against any requirement, claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

28. PATENTED DEVICES, MATERIALS, AND PROCESSES

It is mutually understood and agreed that without exception contract prices are to include all royalties and costs arising in the Work. It is the intent that whenever the Bidder is required or desires to use any design, device, material, or process covered by letters or patent or copyright, the right of such use shall be provided for by suitable legal agreement with the patent owner. The Bidder in all cases shall indemnify and save harmless the City from any and all claims for infringement by reason of the use of any such patent design, device, materials, or process, to be performed or used under the contract, and shall indemnify and save harmless the said City for any costs, expenses, attorney's fees, and damages which it may be obligated to pay, by reason of any such infringement at any time during the prosecution or after the completion of the Work.

29. PROTECTION AND RESTORATION OF PROPERTY

It is understood that in the execution of the Work herein provided for there may be interference with and/or damage to trees, shrubbery, crops, fences, railroad tracks, overhead structures such as poles, wires, cables, underground structures such as sewers, gas mains, telephone conduits and cables, water mains, drains, service connections, wires, pipes, conduits, located along, adjacent to, and/or crossing the locations of the Work, and that it may be necessary to relocate or reconstruct certain of such structures,

improvements, and installations and/or to make repairs to the same by reasons of doing the Work herein provided for, and it is therefore particularly and specifically agreed that the Bidder except as otherwise herein provided, shall do the Work necessary for such relocation, reconstruction, and repair and shall bear and pay all of the cost and expense of such relocation, reconstruction, and/or repair of, and all damage done to any and all such pipe line and other structures, improvements, and installations, including service connections, if any, to adjacent property, existing at the date of the execution of the contract and/or existing, during the period of the Work to be done under the contract, which may be interfered with, damaged, and/or necessarily relocated, reconstructed, or repaired in the performance of the Work herein provided for, including the restoration and resurfacing of unpaved portions of public streets and alleys, rights-of-way, easements, and private property damaged or disturbed by the Work, the same to be restored to as good condition as the same existed at the time of the commencement of any such Work or relocation.

It is further agreed that the owners of any structures, improvements, installations, referred to in the preceding paragraph shall have the right to do the Work or any part thereof necessary for the relocation, reconstruction, replacement, repair, and other Work required by reason of any interference with and/or damage to such structures, improvements, installations, due to the prosecution of the Work and upon completion of such Work by them done, said owners may render bills to the Bidder for the cost and expenses thereof which bills shall be paid by the Bidder without extra compensation therefore from the City, upon demand by said owners, or upon demand made by the City upon the Bidder for the payment thereof.

30. INSURANCE AND HOLD HARMLESS PROVISION

At the Bidder's expense, the Bidder shall secure and maintain in effect throughout the duration of this contract, insurance of the following kinds and limits to cover all locations of the Bidder's operations. The Bidder shall furnish Certificates of Insurance to the City before starting or within ten (10) days after the execution of the contract, whichever date is reached first. All insurance policies shall be written with insurance companies approved by the City of Aurora and licensed to do business in the State of Illinois and having a rating of not less than A IX, according to the latest edition of the A.M. Best Company; and shall include a provision preventing cancellation of the insurance policy unless thirty (30) days prior written notice is given to the City. This provision shall also be stated on each Certificate of Insurance as: "Should any of the above described policies be canceled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the certificate holder named to the left".

If requested, the awardee of this proposal will give the City a copy of the insurance policies. The policies must be delivered to the City within two weeks of the request.

The limits of liability for the insurance required shall provide coverage for not less than the following amount, or greater where required by law:

(1) Worker's Compensation Insurance - Statutory amount.

(2) General Liability Insurance:

  (a) $1,000,000 per occurrence and $2,000,000 general aggregate

  (b) $500,000 per occurrence for Property Damage

(c) $1,000,000 per occurrence for Personal Injury

(3) Auto Liability Insurance:

(a) Bodily injury with limits not less than $1,000,000

(b) Property damage with limits not less than $500,000

(4) Umbrella excess liability of $1,000,000 per occurrence, $2,000,000 aggregate

The Bidder shall include the City as a primary, non-contributory additional named insured on both General and Auto Liability Insurance policies and indicate said status on any Certificates of Insurance provided to the City pursuant to this project. All insurance premiums shall be paid without cost to the City.

The Bidder agrees to indemnify and save harmless the City of Aurora, their agents and employees from and against all loss and expenses (including costs and attorneys' fees) by reason of liability imposed by law or claims made upon the City of Aurora for damages because of bodily injury, including death at any time resulting therefrom sustained by any person or persons or on account of damage to property, including loss of use thereof, arising out of or in consequence of the performance of this project work, whether such claims or injuries to persons or damage to property be due to the negligence of the Bidder or his Subcontractors. The Bidder shall assume total risk and shall be responsible for any and all damages or losses caused by or in any way resulting from the work and provide all insurance necessary to protect and save harmless the City of Aurora and its employees.

31. LOCAL BIDDER PREFERENCE

O18-070 approved August 28, 2018 defines “Local business” to mean a vendor or contractor who has a valid, verifiable physical business address located within the corporate boundaries of the City of Aurora at least twelve months prior to a bid or proposal opening date, from which the vendor, contractor or consultant operates or performs business on a daily basis, including manufacturing production or distribution. The business must disclose the percentage of workforce in the City of Aurora; be registered with the City of Aurora, if applicable; be subject to City of Aurora taxes (inclusive of sales taxes); be current with property tax payments and sales tax payments; not have any outside cited code violations; not have any outstanding debts to the City of Aurora; have adequately qualified and trained staff to service the bid of interest.

32. MINORITY PARTICIPATION

The City of Aurora encourages minority business firms to submit proposers and encourages the successful contract bidder to utilized minority businesses as sub-contractors for supplies, equipment, services and construction.

33. WORKERS COMPENSATION ACT

The Bidder further agrees to insure his employees and their beneficiaries and to the employees and the beneficiaries of any subcontractor employed from time to time by him on said Work, the necessary first-aid, medical, surgical, and hospital services and any

compensation provided for in the Workers Compensation Act of the State of Illinois that is or may be in force in the State.

Such insurance shall be placed by said Bidder in a company or association (to be approved by the City and to be accepted by the Council thereof) authorized under the laws of the State of Illinois to insure the liability above specified.

Said Bidder hereby further agrees to indemnify, keep and save harmless said City from all action, proceedings, claims, judgments, awards, and costs, loss, damages, expenses, and attorney's fees which may in any way come against said City by reason of any accidental injuries or death suffered by any of his employees or the employees of any subcontractor employed by him in and about the performance of the Work provided for in the contract, and any and all liability resulting thereupon; and said Bidder, in case of any suit, action, or proceeding on account of any or all of the foregoing shall defend the same for and on behalf of said City and indemnify the City therefore, and pay the amount of any and all awards and final judgments and orders rendered and entered therein, together with all loss, costs, damages, attorney's fees, and expenses incurred therein. Said Bidder shall be the sole employer of its employees and workers, and in no way so shall the City be considered a joint employer of same under any circumstance.

34. RESPONSIBLE BIDDER

Section 2-331(5) of the Aurora City Code requires that bidders for city contracts in excess of $25,000 must participate in active apprenticeship and training programs approved and registered with the United States Department of Labor's Bureau of Apprenticeship and Training to be considered a responsible bidder. A bidder must affirm such participation in the Bidder's Certification submitted with any bid. Furthermore, **the bidder must submit a copy of each applicable program registration certificate with his/her bid**.

35. SUBLETTING OR ASSIGNMENT OF WORK

If the Bidder sublets the whole or any part of the Work to be done under the contract, with or without the written consent of the City, he shall not, under any circumstances, be relieved of his liabilities and obligations. All transactions of the City shall be with the Bidder; subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence. In case any party or parties, to whom any work under the contract shall have been sublet, shall disregard the directions of the City or his duly authorized representatives, or shall furnish any unsatisfactory Work or shall fail or refuse in any way to conform to any of the provisions or conditions of the contract, then in that case, upon the written order of the City, the Bidder shall require said party or parties in default to discontinue Work under the contract. Said Work shall be corrected or made good and shall be continued and completed by the said Bidder or by such other party or parties as are approved by the City, in the manner and subject to all of the requirements specified in the contract.

36. PROSECUTION OF WORK

The Bidder shall begin the Work to be performed under the contract no later than ten (10) days after the execution and acceptance of the contract, unless otherwise provided. The

Work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to insure its completion within the time specified in the contract. The Bidder shall solely be fully responsible for complying with State and local prevailing wage requirements in accordance with the Bidders Certification, and for all wage rate and hour regulations and applications.

37. GUARANTEE AND MAINTENANCE OF WORK

The Bidder shall guarantee the Work to be free from defects of any nature for a period of one year from and after the final acceptance and payment for the Work by the City, and the Bidder shall maintain said Work and shall make all needed repairs and/or replacements during this one year period which in the judgment of the Council, may be necessary to insure the delivery of the Work to the City in first-class condition and in full conformity with the plans and specifications therefore, at the expiration of the guarantee period.

38. CONTRACT

The successful Bidder will be required to execute a contract in the form attached hereto (as may be modified and amended by the City) within five (5) days after notice of award and receipt of the contract from the City and sign and deliver to the City all required copies of the contract. Failure on the part of the Bidder to execute the contract within five (5) days and provide the required evidence of insurance at, or before the execution of the contract, will be considered just cause for the annulment of the award of the Bid.

39. INSURANCE CERTIFICATES

At, or prior to, delivery of the signed contract, the successful Bidder shall deliver to the City the policies of insurance or insurance certificates as required by the contract Documents. All policies or certificates of insurance shall be approved by the City before the successful Bidder may proceed with the Work. Execution of the contract by the City is contingent upon receipt of the insurance policies or certificates. Failure to provide the evidence of insurance in the time provided for will result in disqualification and the Bid will be awarded to the next lowest Bidder or in the creation of a new Bid.

40. PERSONNEL AND EQUIPMENT

The Bidder shall provide an adequate number of competently trained personnel with sufficient supervision to provide the services required, and the Bidder shall provide identification of its personnel if requested by the City.

Any Bidder's employee whose employment is reasonably detrimental or objectionable to the City shall be immediately transferred from the premises upon the City's request. The exercise of the option shall not be construed as placing the City in charge of the Work or making the City responsible for safety.

All on the road vehicles or equipment shall be identified by the Bidder's name for purpose of identification.

All tools or equipment required to carry out the operations within the scope of the contract shall be provided by the Bidder, and shall meet the standards of the Federal

Occupational Safety and Health Act and State of Illinois safety codes as may be required by law. The City reserves the right to inspect the equipment that will be used prior to award of Bid.

41. TIME

Bidder shall schedule its Work and that of its subcontractors to meet the requirement of the City. Bidder shall perform the Work expeditiously in cooperation with the City's agents, employees, contractors and subcontractors. Bidder shall make no claim against City and no claim shall be allowed for any damages which may arise out of any delay caused by City, its agents, employees, contractor or subcontractors. Bidder's sole remedy for delay shall be an extension in the contract time.

42. QUESTIONS

Inquiries and/or questions pertaining to the provisions and specifications of this bid package shall be directed to Director of Purchasing, in writing at DL@aurora-il.org. Questions will be accepted until 8:00 am, Friday, February 28, 2020. Questions will be answered via addendum and posted to the City's website at https://www.aurora-il.org/bids.aspx by 5:00 pm, Tuesday, March 3, 2020, 2020. NO questions will be accepted or answered verbally. **No questions will be accepted or answered after February 28, 2020 8:00 am cut-off date/time.**

It is the responsibility of the interested bidder to assure they have received addendum, if any issued, and acknowledge such receipt where indicated.

SECTION 00 31 13
PRELIMINARY SCHEDULE

1.01 GENERAL

A. The following represents the preliminary construction schedule for the Work. This schedule is the current estimate of the Owner to be used for purposes of bidding. All bidders shall include the costs of all overtime, double-shift, or so-called "premium" time that may be necessary to meet this milestone.

1.02 PRELIMINARY SCHEDULE

A. Award of Project: Anticipated April 14, 2020

B. Commencement of Construction: April 27, 2020

C. Substantial Completion: August 14, 2020

END OF SECTION

SECTION 00 41 13
BID FORM - STIPULATED SUM

SINGLE CONTRACT

PROJECT: **CITY OF AURORA - CITY CLERK AND BUDGET DEPARTMENT RENOVATION**
44 E. DOWNER PLACE
AURORA, ILLINOIS 60507

BID TO: **CITY OF AURORA**
44 E. DOWNER PLACE
AURORA, ILLINOIS 60507

BID FROM:

Corporate Name: _____
Address: _____
City, State, Zip: _____
Telephone No.: _____
Fax No.: _____
Email Address: _____
Contact Person: _____

1.01 ACCEPTANCE

The undersigned Bidder agrees, if this Bid is accepted, to enter into an agreement with the Owner, in the form included in the Bidding Documents, to perform and furnish the Work as indicated in the Bidding Documents for the Bid Price and within the Bid times indicated in this Bid and in accordance with the terms and conditions of the Contract Documents.

1.02 ACKNOWLEDGMENTS

In submitting this Bid, the Bidder represents that:

A. This Bid will remain open for acceptance for a period of 90 days from the Bid opening date;

B. The Owner has the right to reject this Bid;

C. The Bidder accepts the provisions of the Instructions and Supplementary Instructions to Bidders regarding the disposition of the Bid;

D. The Bidder agrees to sign and submit the Agreement and other documents required by the Bidding Requirements within 15 days after the Owner's Notice of Award;

E. The Bidder has examined the complete set of Bidding Documents;

F. The Bidder has visited the site and become familiar with the general, local, and site conditions;

G. The Bidder is familiar with Federal, State and Local Laws and Regulations;

H. The Bidder has correlated the information known to the Bidder; information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. This Bid is genuine and not made in the interest of or on behalf of an undisclosed person, firm, or corporation and is not submitted in conformity with an Agreement or rules or group, association, organization, or corporation;

J. The Bidder has not directly or indirectly induced or solicited another Bidder to submit a false or sham Bid; sought by collusion to obtain for itself an advantage over another Bidder or over the Owner;

K. The Bidder has received the following Addenda, receipt of which is hereby acknowledged:

1. Addendum No. _____Date _____

2. Addendum No. _____Date _____

3. Addendum No. _____Date _____

The Bidder understands that, in submitting this Bid, he waives all right to plead any misunderstandings regarding the foregoing.

1.03 SINGLE CONTRACT - BASE BID PRICE:

A. Refer to Section 01 10 00 - Summary.

B. The Bidder will complete the Work of the Project in accordance with the Contract Documents for the following price:

1. Stipulated Sum Bid Price:

_____
(Use Numerals)

_____
(Use Words)

1.04 BID BOND

A. The Bidder has attached the required bid security in the form described by Document 00 43 13-Bid Security Form with this Bid.

1.05 ALLOWANCES

A. The Bidder has included in the Bid the appropriate allowances as specified in Section 01 21 00 - Allowances.

1.06 CONTRACT TIME

A. The Bidder agrees to begin and complete Work as indicated in Document 00 31 13 - Preliminary Schedule.

1.07 OTHER BID FORM SUPPLEMENTS

A. The following additional Documents are attached to and made a condition of this Bid:
   1. Document 00 43 14 - Bid Form Supplement - Bidder's Certification.
   2. Document 00 43 15 - Bid Form Supplement - Bidder's Tax Certification.
   3. Document 00 43 16 - Bid Form Supplement - Apprenticeship or Training Program Certification and Current Signatory Letters.
   4. Document 00 43 17 - Bid Form Supplement - City of Aurora Local Vendor Preference Application.

1.08 SIGNATURES

A. Respectfully submitted this _____ day of _____, 2020.

B. Type of Firm: (check one)

_____ Individual

_____ Partnership

_____ Corporation

_____ Joint Venture

C. Corporate Seal:(SEAL)

D. Full name of firm: _____

E. Authorized Signing Officer: _____

Title: _____

F. Authorized Signing Officer: _____

Title: _____

END OF DOCUMENT

SECTION 00 43 13
BID SECURITY FORM

1.01 FORM OF BID BOND

A. AIA Document A310 (2010 Edition) - Bid Bond Form.

B. The above document may be examined at the Architect/Engineer's office or purchased at the American Institute of Architects, http://www.aia.org/docs.

END OF DOCUMENT

SECTION 00 43 14
BID FORM SUPPLEMENT - BIDDER'S CERTIFICATION

1.01 City of Aurora Bidder's Certification attached (1 page).

END OF DOCUMENT

BIDDER'S CERTIFICATION

I/We hereby certify that:

A. A complete set of bid papers, as intended, has been received, and that I/We will abide by the contents and/or information received and/or contained herein.

B. I/We have not entered into any collusion or other unethical practices with any person, firm, or employee of the City which would in any way be construed as unethical business practice.

C. I/We have adopted a written sexual harassment policy which is in accordance with the requirements of Federal, State and local laws, regulations and policies and further certify that I/We are also in compliance with all equal employment practice requirements contained in Public Act 87-1257 (effective July 1, 1993) and 775 ILCS 5/2-105 (A).

D. I/We are in compliance with the most current "Prevailing Rate" of wages for laborers, mechanics and other workers as required by the City of Aurora and the State of Illinois Department of Labor.

E. I/We operate a drug free environment and drugs are not allowed in the workplace or satellite locations as well as City of Aurora sites in accordance with the Drug Free Workplace Act of January, 1992.

F. The Bidder is not barred from bidding on the Project, or entering into this contract as a result of a violation of either Section 33E-3 or 33E-4 of the Illinois Criminal Code, or any similar offense of "bid rigging" or "bid rotating" of any state or the United States.

G. I/We will submit, for all contracts in excess of $25,000.00, a certificate indicating participation in apprenticeship and training programs approved and registered with the United Sates Department of Labor.

☐ Contractor shall check the box indicating that a copy of applicable program certification is attached.

H. I/We will abide by all other Federal, State and local codes, rules, regulations, ordinances and statutes.

COMPANY NAME _____

ADDRESS _____

CITY/STATE/ZIP CODE _____

NAME OF CORPORATE/COMPANY OFFICIAL _____
PLEASE TYPE OR PRINT CLEARLY

TITLE _____

AUTHORIZED OFFICIAL SIGNATURE _____

DATE _____

TELEPHONE (_____)_____

FAX No. (_____)_____

Subscribed and Sworn to

Before me this _____ day

of _____, 2020

_____
Notary Public

(SEAL)

SECTION 00 43 15
BID FORM SUPPLEMENT - BIDDER'S TAX CERTIFICATION

1.01 City of Aurora Bidder's Tax Certification attached (1 page).

END OF SECTION

STATE OF ILLINOIS)
) ss.
County of Kane)

BIDDER'S TAX CERTIFICATION

(BIDDER'S EXECUTING OFFICER), being first duly sworn on oath, deposes and states that all statements made herein are made on behalf of the Bidder, that this despondent is authorized to make them and that the statements contained herein are true and correct.

Bidder deposes, states and certifies that Bidder is not barred from contracting with any unit of local government in the State of Illinois as result of a delinquency in payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate statute, its liability for the tax or the amount of the tax, all as provided for in accordance with 65 ILCS 5/11-42.1-1.

DATED this _____ day of _____, 2020.

By _____
(Signature of Bidder's Executing Officer)

_____
(Print name of Bidder's Executing Officer)

_____
(Title)

ATTEST/WITNESS:

By _____

Title _____

Subscribed and sworn to before me this
_____ day of _____, 2020.

_____
Notary Public

(SEAL)

SECTION 00 43 16
BID FORM SUPPLEMENT - APPRENTICESHIP OR TRAINING PROGRAM CERTIFICATION AND CURRENT SIGNATORY LETTERS

1.01 City of Aurora Apprenticeship or Training Program Certification attached (2 pages).

END OF SECTION

Apprenticeship or Training Program Certification

Return with Bid

All contractors are required to complete the following certification:

☐ For this contract proposal or for all groups in this deliver and install proposal.

☐ For the following deliver and install groups in this material proposal:

_____
_____
_____
_____

The City of Aurora policy, adopted in accordance with the provisions of the Illinois Highway Code, requires this contract to be awarded to the lowest responsive and responsible bidder. In addition to all other responsibility factors, this contract or deliver and install proposal requires all bidders and all bidders' subcontractors to disclose participation in apprenticeship or training programs that are approved by and registered with the United States Department of Labor's Bureau of Apprenticeship and Training, and applicable to the work of the above indicated proposals or groups. Therefore, all bidders are required to complete the following certification:

I. Except as provided in paragraph IV below, the undersigned bidder certifies that it is a participant, either as an individual or as part of a group program, in an approved apprenticeship or training program applicable to each type of work or craft that the bidder will perform with its own employees.

II. The undersigned bidder further certifies for work to be performed by subcontract that each of its subcontractors submitted for approval is, at the time of such bid, participating in an approved, applicable apprenticeship or training program applicable to the work of the subcontract.

III. The undersigned bidder, by inclusion in the list in the space below, certifies the official name of each program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's employees. Types of work or craft that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category for which there is no applicable apprenticeship or training program available.

_____
_____
_____
_____

IV. Except for any work identified above, any bidder or subcontractor that shall perform all or part of the work of the contract or deliver and install proposal solely by individual owners, partners or members and not by employees to whom the payment of prevailing rates of wages would be required, check the following box, and identify the owner/operator workforce and positions of ownership. ☐

_____

_____

_____

_____

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project is accounted for and listed. **The City of Aurora requires a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors be included with the bid in order to qualify to bid on the project.**

The Bidder must also submit a signed and current dated letter(s) from the certificate holder(s) indicating that the Bidder may use the certificate to meet the above listed requirements for this specific project.

Bidder: _____ By: _____

(Signature)

Address: _____ Title _____

SECTION 00 43 17
BID FORM SUPPLEMENT - CITY OF AURORA LOCAL VENDOR PREFERENCE APPLICATION

1.01 City of Aurora, IL. - Local Vendor Application attached (1 page).

END OF SECTION

City of Aurora, IL - Local Vendor Preference Application

The business identified below is requesting to be placed on the City of Aurora, Illinois Local Vendor Preference list, in accordance with ordinance O18-070, approved August 28, 2018.

1) Date Submitted: _____
2) Name of Business: _____
3) Address of Local Office: _____
4) City, State, Zip: _____
5) Company's Web Address: _____
6) Phone: _____ Fax: _____
7) County your Local Business is Located In: _____

Submitted By (Signature): _____

Print Name and Title: _____

Email Address: _____

Sec. 2-410.-Prequalification; local bidder.

(a) If an interested business would like to prequalify as a "local business", such a business shall complete and submit the prequalification application along with supporting documentation, as listed below, and the applicable fee as set by the City Council, to the Finance Department:
   a. Evidence that the business has established and maintained a physical presence in the City of Aurora, by virtue of the ownership or lease of all or a portion of a building for a period of not less than twelve (12) consecutive months prior to the submission of the prequalification application; and
   b. Evidence demonstrating that the business is legally authorized to conduct business within the State of Illinois and the City of Aurora, and has a business registered to operate in the City if required; and
   c. Evidence that the business is not a debtor to the City of Aurora. For purposes of this subparagraph, a debtor is defined as having outstanding fees, water bills, sales tax or restaurant/bar tax payments that are thirty (30) days or more past due, or has outstanding weed or nuisance abatements or liens, has failure to comply tickets or parking tickets that are not in dispute as to their validity and are not being challenged in court or other administrative processes.

Back up documentation for (a) a. and (a) b. must accompany this submittal or application will be rejected.

Please note for (a) c. above the City of Aurora will verify internally that your company does not have any outstanding fees. Your company should make sure that to the best of its knowledge all bills are current.

Return completed application, with all required backup documentation to:
City of Aurora, Attn: Purchasing Division, 44 E. Downer Place, Aurora, IL 60507
Or email to: PurchasingDL@Aurora-il.org

Do not write below this line: For City of Aurora use ONLY

(a) a.
(a) b.
(a) c.

Date: _____

Approved: _____ Denied: _____
Letter Sent: _____ Initials: _____

SECTION 00 52 00
AGREEMENT FORM

1.01 FORM OF AGREEMENT

A. AIA Document A101, Owner-Contractor Agreement Form - Stipulated Sum (2017 Edition), forms the basis of Contract between the Owner and Contractor.

B. The above document may be examined at the Architect's office or purchased at the American Institute of Architects, http://www.aia.org/contractdocs/index.htm.

1.02 RELATED REQUIREMENTS

A. Document 00 72 00 - General Conditions.

B. Document 00 73 00 - Supplementary Conditions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF DOCUMENT

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 «April» in the year « 2020 »
(In words, indicate day, month and year.)

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

«City of Aurora »« »
«44 East Downer Place »
«Aurora, Illinois 60506 »
« »

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

« »« »
« »
« »
« »

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

«1267 - City of Auorora – City Clerk and Budget Department Renovation »
«44 East Downer Place »
«Aurora, Illinois 60506 »

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

«Kluber, Inc. »« »
«10 S. Shumway Avenue »
«Batavia, Illinois 60510 »
« »

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.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

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.

[« X »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

«April 27, 2020 »

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.

[« X »] By the following date: « August 14, 2020 »

§ 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
Section 01 21 00 – Contingency Allowance	$20,000.00

§ 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)
NA		

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

«None »

§ 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:

«See attached 2020 Payment Deadline Schedule – Exhibit "E" »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than two weeks prior to payment deadline, the Owner shall make payment of the amount certified to the Contractor not later than on the attached schedule. 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 the next day listed on the attached schedule. The provisions of the Illinois Local Government Prompt Payment Act, 50ILCS 505/1 shall apply to this contract. Contractor shall submit certified payroll and partial/final waivers of lien with every payment request.
(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.)

«Ten Percent (10.0)% »

§ 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:

« »

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

[« X »] 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)

«Jim Birchall »
«City of Aurora »
«44 East Downer Place »
«Aurora, Illinois 60506 »
« »
« »

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

«TBD »
« »
« »
« »
« »
« »

§ 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.

«»

§ 8.7 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.)

«NA »

.5 Drawings

Number	Title	Date
00 01 15	Drawing Index, Exhibit 'D'	February 14, 2020

.6 Specifications

Section	Title	Date	Pages
01 01 10	Table of Contents Exhibit 'C'	February 14, 2020	-

.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.)

«

00 11 13	Advertisement for Bids
00 21 13	Instructions to Bidders
00 31 13	Preliminary Schedule
00 41 13	Bid Form – Stipulated Sum submitted by
00 43 13	Bid Security Form submitted by
00 43 14	Bid Form – Bidder's Certification submitted by
00 43 15	Bid Form – Bidder's Tax Certification submitted by
00 43 16	Bid Form – Apprenticeship or Training Program Cert. and Current Signatory Letters submitted by

»

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
«Jolene Coulter, Director of Purchasing »« »	« »« »
(Printed name and title)	*(Printed name and title)*

SECTION 00 60 00
PROJECT FORMS

1.01 FORMS OF BONDS AND CERTIFICATES

A. Performance and Payment Bonds: AIA Document A312 - Performance Bond and Payment Bond.

B. Consents of Surety:
   1. AIA Document G707A - Consent of Surety to Final Reduction in or Partial Release of Retainage.
   2. AIA Document G707 - Consent of Surety to Final Payment.

C. The above documents may be examined at the Architect's office or purchased at the American Institute of Architects, http://www.aia.org/docs_purchase&defPr=1.

END OF DOCUMENT

SECTION 00 72 00
GENERAL CONDITIONS

1.01 FORM OF GENERAL CONDITIONS

A. The General Conditions applicable to this contract is attached following this page.

B. AIA Document A201 - 2017 "General Conditions of the Contract for Construction" is the General Conditions between the Owner and Contractor.

C. The above document may be examined at the Architect's office or purchased at the American Institute of Architects, http://www.aia.org/contractdocs/index.htm.

1.02 RELATED REQUIREMENTS

A. SECTION 00 73 00 - Supplementary Conditions.

1.03 SUPPLEMENTARY CONDITIONS

A. Refer to Document 00 73 00 for amendments to these General Conditions.

END OF DOCUMENT

SECTION 00 73 00
SUPPLEMENTARY CONDITIONS

1.01 GENERAL

A. The Supplementary Conditions contain modifications and additions to AIA Document A201 - 2017 "General Conditions of the Contract for Construction". Where a portion of the General Conditions is modified, deleted or voided by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

1.02 ARTICLE 1 GENERAL PROVISIONS

A. § 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS
   1. Add new Section 1.2.2.1 as follows:
      "§ 1.2.2.1 Sections of Division 1 - General Requirements govern the execution of the Work of all Sections of the specifications."

B. § 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE
   1. After the first sentence of Section 1.5.1, insert the following:
      "These Instruments of Service are the tangible rendering of professional opinions and service for the Owner and are not, therefore, a commodity, product or good. No warranties, express or implied, are made by the Architect to the Contractor concerning those Instruments of Service."

1.03 ARTICLE 2 OWNER

A. § 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER
   1. Delete the third sentence of Section 2.2.1.
   2. Delete Section 2.2.5 in its entirety and replace with the following:
      "§ 2.2.5 The contractor will be furnished, free of charge, all returned bidding copies of the drawings and project manuals. The Contractor will be furnished as many additional copies as the Contractor may require, at the cost of reproduction."

B. Add new Section 2.5 as follows:
   "§ 2.5 OWNER'S REMEDIES NOT EXCLUSIVE
   § 2.5.1 The rights and remedies of Owner stated in this Article 2 shall be in addition to and not in limitation of any other rights of the Owner granted in the Contract Documents or at law or in equity."

1.04 ARTICLE 3 CONTRACTOR

A. § 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTACTOR
   1. Delete Section 3.2.1 in its entirety and replace with the following:
      "§ 3.2.1 Execution of the Contract by the Contractor is a representation by the Contractor that, prior to the submission of its bid, the Contractor (a) has visited and examined the Project site and is familiar with all of the conditions thereon; (b) has examined the nature, location and character of the general area in which the Project is located, including, without limitation, its climactic conditions, available labor supply, labor costs and available

equipment supply and costs; and (c) has examined the quality and quantity of materials, supplies, tools, equipment, labor and professional services necessary to complete the Work in the manner and within the cost and time frame required by the Contract Documents."

2. Add new Section 3.2.5 as follows:

"§ 3.2.5 Prior to any excavation, the Contractor shall determine the locations of all existing water, gas, sewer, electric, telephone, telegraph, television, irrigation, petroleum pipelines, and other underground utilities and structures. Where the locations of existing underground and surface utilities and structures are indicated, these locations are generally approximate, and all items that may be encountered during the work are not necessarily indicated. The Contractor shall determine the exact locations of all items indicated, and the existence and locations of all items not indicated. Contractor shall be solely responsible for any damage to said facilities and structures and indemnify Architect and Owner."

B. § 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

1. Add new Sections 3.3.4 through 3.3.7 as follows:

"§ 3.3.4 The Contractor has the responsibility to ensure that all material suppliers and Subcontractors, their agents, and employees adhere to the Contract Documents, and that they order materials on time, taking into account the current market and delivery conditions and that they provide materials on time. The Contractor shall coordinate its Work, including without limitation, deliveries, storage, installations, and construction utilities with that of all others on the Project. The Contractor shall be responsible for the space requirements, locations, and routing of its equipment. In areas and locations where the proper and most effective space requirements, locations and routing cannot be made as indicated, the Contractor shall meet with all others involved, before installation, to plan the most effective method of overall installation.

§ 3.3.5 All manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer, unless herein specified to the contrary.

§ 3.3.6 After commencing the work, the Contractor shall use every precaution to avoid interferences with existing underground and surface utilities and structures, and protect them from damage. The Contractor shall repair or pay for all damage caused by his operations to all existing utility lines, public property, and private property, whether it is below ground or above ground, and he shall settle in total cost of all damage suits which may arise as a result of his operations at no additional costs to the Owner. To avoid unnecessary interferences or delays, the Contractor shall coordinate all utility removals, replacements and construction with the appropriate utility company. The cost of temporarily relocating utilities for convenience of the Contractor, shall be paid by Contractor.

§ 3.3.7 The Contractor shall establish and maintain benchmarks and all other grades, lines, and levels necessary for the Work, report errors or inconsistencies to the Owner and Architect before commencing Work, and review the placement of the building and permanent facilities on the site with the Owner and Architect after all lines are staked out and before foundation Work is started."

C. § 3.4 LABOR AND MATERIALS

1. Delete Section 3.4.2 in its entirety and replace with the following:

"§ 3.4.2 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Section 01 60 00)."

2. Add new Section 3.4.4 as follows:

"§ 3.4.4 The Contractor and each Subcontractor shall pay not less than the general prevailing rate of hourly wages for work of a similar character in the locality in which the work is performed and not less than general prevailing rate of hourly wages for legal holidays and overtime work in the performance of work under this Contract, as established by the Illinois Department of Labor, pursuant to an act of the General Assembly of the State of Illinois. In accordance with applicable law, Contractor and each Subcontractor shall keep an accurate record showing the names and occupation of all laborers, workers and mechanics employed by them, and also showing the actual hourly wages paid to each such individual, which record shall be open at all reasonable hours to inspection by the Owner, its officers and agents, and to agents of the Illinois Department of Labor. The Contractor and each Subcontractor hereby agree, jointly and severally, to defend, indemnify and hold harmless the Owner from any and all claims, demands, liens or suits of any kind or nature whatsoever (including suits for injunctive relief) by the Illinois Department of Labor under the Illinois Prevailing Wage Act, or by any laborer, worker or mechanic employed by the Contractor or the Subcontractor who alleges that he has been paid for his services in a sum less than prevailing wage rates required by Illinois law. The Owner agrees to notify the Contractor or Subcontractor of the pendency of any such claim, demand, lien or suit. Contractor must pay prevailing wages in effect at time labor is performed."

D. § 3.6 TAXES

1. Delete Section 3.6 in its entirety and replace with the following:

"§ 3.6 TAXES

The Owner is exempt from the Illinois Use Tax Act and the Retailer's Occupation Tax. Any taxes for which the Owner is not exempt shall be paid by the Contractor."

E. § 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

1. Delete Section 3.7.4 in its entirety.

F. § 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

1. Delete Section 3.10.1 in its entirety and replace with the following:

"§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall indicate the proposed completion dates for the various subdivisions of the Work, as well as the totality of the Work. The schedule shall be updated every thirty (30) days and submitted to Architect with Contractor's Applications for Payment. Each schedule shall contain a comparison of actual progress with the estimated progress for such point in time stated in the original schedule. If any schedule submitted sets forth a date for Completion for the Work or any phase of the Work beyond the date(s) of Completion established in the Contract (as the same may extended as provided in the Contract Documents), then Contractor shall submit to Architect and Owner for their review and approval a narrative description of the means and methods which Contractor intends to employ to expedite the progress of the Work to ensure timely completion of the various phases of the Work as well as the totality of the Work. To ensure such timely completion,

Contractor shall take all necessary action including, without limitation, increasing the number of personnel and labor on the Project and implementing overtime and double shifts. In that event, Contractor shall not be entitled to an adjustment in the Contract Sum of the schedule. The Owner may, in its discretion, choose to withhold any payment due the Contractor until an updated schedule is submitted. The Owner's or Architect's failure to object to a submitted schedule that exceeds time limits current under the Contract Documents shall not relieve the Contractor of its obligations to meet the time limits in the Contract Documents, nor shall it make the Owner or Architect liable for any of the Contractor's damages incurred as a result of increased construction time or not meeting the time limits in the Contract Documents. Similarly, the Owner's or Architect's failure to object to a Contractor's schedule showing completion in advance of the time limits in the Contract Documents shall not create or infer any rights in favor of the Contractor for acceleration of the Work."

G. § 3.18 INDEMNIFICATION
   1. Delete Section 3.18.1 and replace with the following:
      a. "§ 3.18.1 To the fullest extent permitted by law, the Contractor shall waive any right of contribution against the Owner and shall indemnify and hold harmless the Owner and the Architect and their officers, officials, employees, volunteers and agents from and against all claims, damages losses and expenses, including, but not limited to, legal fees (attorney's and paralegal's fees, expert fees and court costs), arising out of or resulting from the performance of the Contractor's work provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or injury to or destruction of property, other than the work itself, including the loss of use resulting therefrom to the extent it is caused in whole or in part by any wrongful or negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right to indemnity which the Owner would otherwise have. The Contractor shall similarly, protect, indemnify and hold and save harmless, the Owner, its officers, officials, employee, volunteers and agents against and from any and all claims, costs, causes, actions and expenses, including, but not limited to, legal fees, incurred by reason of Contractor's breach of any of its obligations under, or Contractor's default of any provisions of the Contract."
   2. Add new Section 3.18.1.1 as follows:
      "§ 3.18.1.1 The Contractor and every subcontractor expressly waive all so-called Kotecki rights under the Illinois workers' compensation statutes even though Owner has retained all such rights."

1.05 ARTICLE 7 CHANGES IN THE WORK

A. § 7.1 GENERAL
   1. Add new Section 7.1.4 as follows:
      "§ 7.1.4 For adjustments to the Contract Sum based on other than the unit price method, overhead, profit and general conditions combined. The parties shall negotiate reasonable adjustment.
         .1 All proposals, except those less than $200.00, shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and

materials shall be itemized in the manner prescribed above. Where major cost items are subcontracts, they shall be itemized also. In no case will a change involving over $200.00 be approved without such itemization."

B. § 7.3 CONSTRUCTION CHANGE DIRECTIVES
   1. In the first sentence of Section 7.3.7, delete the words: "as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount." and replace with the words: "in accordance with Section 7.1.4".

C. 7.4 MINOR CHANGES IN THE WORK
   1. At the end of the paragraph, add the following sentence: "Copies of any such changes will be forwarded in a timely manner to the Owner."

1.06 ARTICLE 9 PAYMENTS AND COMPLETION

A. § 9.3 APPLICATIONS FOR PAYMENT
   1. Add new Section 9.3.1.3 as follows:
      "§ 9.3.1.3 Until substantial completion, the Owner shall pay 90 percent of the amount due the Contractor on account of progress payments."
   2. Add new Section 9.3.2.1 as follows:
      "§ 9.3.2.1 In accordance with Section 9.3.2, the Contractor shall be permitted to make written petition to the Owner requesting payment for 75% of the cost of materials and equipment suitably stored off the site at a location agreed upon in writing between the Owner and the Contractor. In order to receive such payment, title to the materials and/or equipment must pass to the Owner; the materials and/or equipment must be stored in a protected, insured facility agreed to by the Owner, with the Owner named as an additional insured; and all storage costs and costs associated with handling and transporting the materials and/or equipment to the Project site must be paid for by the Contractor. Owner in its sole discretion may grant said petition."

B. § 9.8 SUBSTANTIAL COMPLETION
   1. Delete the last sentence of Section 9.8.5 and replace with the following: "The payment shall be sufficient to increase the total payments to 95 percent of the Contract sum, less such amounts as the Architect shall determine for incomplete Work and unsettled claims."

C. § 9.10 FINAL COMPLETION AND FINAL PAYMENT
   1. Delete Section 9.10.4 in its entirety.

1.07 ARTICLE 11 INSURANCE AND BONDS

A. § 11.1 CONTRACTOR'S LIABILITY INSURANCE
   1. Delete the semicolon at the end of Clause 11.1.1.1 and append the following: ", including private entities performing work at the site and exempt from the coverage on account of number of employees or occupation, which entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the project;"
   2. Delete the semicolon at the end of Clause 11.1.1.2 and append the following: ", or persons or entities excluded by statute from the requirements of Clause 11.1.1.1 but required by the contract documents to provide the insurance required by that clause;"

3. Delete the semicolon at the end of Clause 11.1.1.6 and append the following: ", and coverage should be written on a comprehensive automobile policy which will include coverage for owned, non-owned and hired motor vehicles."
4. Add new Section 11.1.2.1 as follows:

   "§ 11.1.2.1 The insurance required by Section 11.1.1 shall be written for not less than the following limits, or greater if required by law:

   1) Workers' Compensation:
      a) State: Statutory
      b) Applicable Federal (e.g., Longshoremen's): Statutory
      c) Employer's Liability
         (1) $500,000.00 Per Accident
         (2) $500,000.00 Disease, Policy Limit
         (3) $500,000.00 Disease, Each Employee
   2) If written under Comprehensive General Liability Policy Form (including sub-lines specified in Clause 11.1.1.8):
      a) Bodily Injury:
         (1) $1,000,000.00 Per Occurrence
         (2) $3,000,000.00 Aggregate Per Project
      b) Property Damage:
         (1) $1,000,000.00 Per Occurrence
         (2) $3,000,000.00 Aggregate Per Project
      c) Bodily Injury and Property Damage combined:
         (1) $1,000,000.00 Per Occurrence
         (2) $3,000,000.00 Aggregate Per Project
      d) Personal Injury:
         (1) $3,000,000.00 Aggregate Per Project
   3) If written under Commercial General Liability Policy Form:
      a) $3,000,000.00 General Aggregate Per Project
      b) $1,000,000.00 Products Completed Operations Aggregate
      c) $1,000,000.00 Personal and Advertising Injury
      d) $1,000,000.00 Per Occurrence
      e) $ 50,000.00 Fire Damage (any one fire)
      f) $ 5,000.00 Medical Expense (any one person)
   4) Business Automobile Liability (including owned, non-owned and hired vehicles):
      a) Bodily Injury:
         (1) $1,000,000.00 Per Person
         (2) $3,000,000.00 Per Accident
      b) Property Damage:
         (1) $1,000,000.00 Per Occurrence
      c) Bodily Injury and Property Damage Combined:
         (1) $1,000,000.00 Per Occurrence
   5) Umbrella Excess Liability:
      a) $2,000,000.00 over Primary Insurance
      b) $2,000,000.00 Retention for Self-Insured Hazards Each Occurrence"
5. Add new Sections 11.1.2.2 through 11.1.2.6 as follows:

"§ 11.1.2.2 Liability insurance should be written on the comprehensive general liability basis, and shall include, but not be limited to the following sub-lines:

1) Premises and Operations including x, c, u coverages (explosion, collapse, underground).
2) Products and Completed Operations.
3) Independent Contractor's Protective.
4) Broad Form Comprehensive General Liability Endorsement:
   a) Contractual Liability, including contractors obligation under Section 3.18.
   b) Personal Injury & Advertising Injury Liability
   c) Premises Medical Payments
   d) Host Liquor Law Liability
   e) Fire Legal Liability - Real Property
   f) Broad Form Property Damage Liability (including completed Operations)
   g) Incidental Medical Malpractice Liability
   h) Non-owned Watercraft Liability
   i) Limited Worldwide Liability
   j) Additional Persons Insured, including employees for personal and advertising injury.
   k) Extended Bodily Injury Liability
   l) Automatic Coverage - Newly acquired Organizations (90 days)

§ 11.1.2.3 If liability insurance is written under the new simplified form Commercial General Liability, the above listed coverages should be included.

§ 11.1.2.4 If the General Liability coverages are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or retroactive date shall predate the contract; the termination date of the policy shall be no earlier than the termination date of coverages required to be maintained after final payment, certified in accordance with Section 9.10.2, and extended period endorsement "Supplemental Tail", must be purchased."

§ 11.1.2.5 All policies of insurance purchased or maintained in fulfillment of Section 11.1.1 shall name the Owner and Architect as additional insureds on a primary and noncontributory basis thereunder.

§ 11.1.2.6 The Contractor shall provide the Owner with the Original policy and shall furnish the Architect with a memorandum copy of said policy. The additional insureds on the Contractor's Liability policy shall be:

City of Aurora
44 E. Downer Place
Aurora, Illinois 60507

KLUBER, INC.
10 S. Shumway Ave.
Batavia, Illinois 60510

6. In Section 11.1.3:
   a. In the second sentence, delete the words "Section 11.1" and replace with the words "Article 11".
   b. Append the following sentence to the end of the Section:

"On the Certificate of Insurance, delete in the cancellation provision the following words, "Endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives"."

7. Add new Section 11.1.3.1 as follows:

"§ 11.1.3.1 Failure of the Owner to demand any certificate, policy, endorsement or other evidence of full compliance with the insurance requirements of Article 11 or failure of the Owner to identify a deficiency from evidence that is provided shall not be construed as a waiver of the Contractor's obligation to maintain such insurance. The Contractor agrees that the obligation to provide the insurance required by these documents is solely its responsibility and that this is a requirement which cannot be waived by any conduct, action, inaction or omission by the Owner."

8. Add new Section 11.1.5 as follows:

"§ 11.1.5 Nothing contained in the insurance requirements of the Contract Documents is to be construed as limiting the liability of the Contractor, the liability of any Subcontractor or any tier or either of their respective insurance carriers. The Owner, does not in any way, represent that the coverages or limits of insurance specified is sufficient or adequate to protect the Owner, Contractor, Architect, or any Subcontractor's interests or liabilities but are merely at minimums. The obligation of the Contractor, the Architect, and any Subcontractor of any tier to purchase insurance, shall not, in any way, limit their obligations to the Owner in the event the Owner should suffer an injury or loss in excess of the amount recoverable through insurance, or any loss or portion of the loss which is not covered by either the Contractor's or any Subcontractor's insurance."

B. § 11.3 PROPERTY INSURANCE

1. In the last sentence of Section 11.3.1, after "Owner, " insert "the Architect,".
2. Delete Section 11.3.1.2. in its entirety.
3. Delete Section 11.3.1.3. in its entirety.
4. Delete Section 11.3.3 in its entirety.
5. Delete Section 11.3.5 in its entirety.
6. Delete Section 11.3.6 in its entirety.
7. Delete Section 11.3.7 in its entirety.
8. In the third sentence of Section 11.3.9 delete the phrase ", or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor.".

C. § 11.4 PERFORMANCE AND PAYMENT BOND

1. Delete Section 11.4.1 in its entirety and replace with the following:

"§ 11.4.1 The Contractor, before commencing the Work, shall furnish a Performance Bond and a Labor and Material Bond. The Performance Bond shall be in an amount equal to 100% of the full amount of the Contract Sum as security for the faithful performance of the obligation of the Contract Documents, and the Labor and Material Payment Bond shall be in an amount equal to 100% of the full amount of the Contract Sum as security for the payment of all persons performing labor and furnishing materials in connections with the Contract Documents. Such bonds shall be on standard AIA Documents, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner, and shall name the Owner as primary co-obligee.

§ 11.4.1.1 The Contractor shall deliver the required bonds to the Owner not later than three days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds shall be furnished.

§ 11.4.1.2 The Contractor shall require the attorney-in-fact who executed the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney."

2. Add new Section 11.4.3 as follows:

"§ 11.4.3 Whenever the Contractor shall be and is declared by Owner to be in default under the Contract, the Surety and the Contractor are each responsible to make full payment to the Owner or any and all extra Work incurred by the Architect as a result of the Contractor's default, and to pay to Owner all attorney's fees and court costs incurred by Owner as a result of the Contractor's default, and in protecting Owner's rights under the Agreement to remedy Contractor's default."

3. Add new Section 11.4.4 as follows:

"§ 11.4.4 The Contractor shall (i) furnish all Surety Company's bonds through Surety Company's local agents approved by and/or as directed by Owner; (ii) fully covered and guarantee with said bond the faithful performance and completion of the entire Contract, including without limitation, the faithful performance of prevailing wage requirements; and (iii) guarantee with said bond payment in all cases by the Contractor or by the Surety Company for all labor performed, material and supplies furnished with the entire Work in the Contract. Said Bond shall remain in full force and effect during the entire period of all general guarantees given by the Contractor with the Contract as called for in the Specifications and Contract, except in cases where other bonds are specifically called for in the specifications and Contract in connection with special guarantees."

D. Add new Section 11.5 as follows:

"§ 11.5 OWNERS AND CONTRACTORS PROTECTIVE LIABILITY INSURANCE

§ 11.5.1 The Contractor shall purchase and maintain Owners and Contractors Protective (OCP) liability insurance covering the Owner's contingent liability for claims which may arise from operations under the Contract and that will protect the Owner and the Architect and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work specifically pertaining to the Illinois Structural Works Act, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury or to destruction of tangible property (other than the work itself) including the loss of use resulting therefrom and (2) is cause in whole or in part by any negligent act of omission of the Contractor, and Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, including by assignment, regardless of whether or not it is caused in part by a party to whom insurance is afforded pursuant to this paragraph. The minimum Per Occurrence and Aggregate limits of liability purchased for such coverage shall be equal, respectively, to the Per Occurrence and Aggregate limits required for the Contractor's Liability insurance, as listed in Section 11.1.2.1, above.

§ 11.5.2 In any and all claims against the Owner or the Architect or any of their agents or employees by any employee of the Contractor, any other contractor assigned to the Contractor,

Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the insurance obligation under this Section shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Workmen's Compensation Acts, disability benefit acts or other employee benefit acts.

§ 11.5.3 The insurance obligations of the Contractor under this Section shall not extend to the liability of the Architect, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications or (2) the giving of or failure to give directions or instruction by the Architect, his agents or employees provided that such giving or failure to give is the primary cause of the injury damage.

§ 11.5.4 The Contractor shall provide the Owner with the Original policy and shall furnish the Architect with a memorandum copy of said policy. The named insured on the Owners and Contractors Protective (OCP) liability policy shall be:

City of Aurora
44 E. Downer Place
Aurora, Illinois 60507

KLUBER, INC.
10 S. Shumway Ave.
Batavia, Illinois 60510

1.08 ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

A. § 12.2.2 AFTER SUBSTANTIAL COMPLETION

1. Delete Sections 12.2.2.1, 12.2.2.2 and 12.2.2.3 in their entireties and replace with the following:

"§ 12.2.2.1 In addition ot the Contractor's obligations under Section 3.5, if, within two years 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 an 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 written 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 two-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 2.4.

§ 12.2.2.2 The two-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 two-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2."

2. Delete Section 12.2.2.5 in its entirety and replace with the following:
   a. "§ 12.2.2.5 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 two-year period for correction of Work as described in Section 12.2 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 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."

1.09 ARTICLE 13 MISCELLANEOUS PROVISIONS

A. § 13.6 INTEREST
   1. Delete Section 13.6 in its entirety. All references to interest payments throughout the Contract Documents are hereby voided.

B. Add Section 13.8 as follows:

"§ 13.8 REGULATIONS

§ 13.8.1 The Contractor or Subcontractor warrants that he is familiar with and he shall comply with Federal, State and local laws, statutes, ordinances, rules and regulations and the orders and decrees of any courts or administrative bodies or tribunals in any manner affecting the performance of the Contract including without limitation Workmen's Compensation Laws, minimum salary and wage statutes and regulations, laws with respect to permits and licenses and fees in connection therewith, laws regarding maximum working hours. No plea of misunderstanding or ignorance thereof will be considered.

§ 13.8.2 Whenever required, the Contractor or Subcontractor shall furnish the Architect and Owner with satisfactory proof of compliance with said Federal, State and local laws, statutes, ordinances, rules, regulations, orders, and decrees.

§ 13.8.3 Each bidder shall carefully examine the Occupational Safety and health Act as issued by the Federal Register (OSHA), and the specific regulations governing procedures, techniques, safety precautions, equipment design, and the configuration of the same as required under this Act and each bidder agrees as evidenced by his submission of a bid to comply with all terms of the Act and to perform and complete in a workmanlike manner all work required in full compliance with said Act.

§ 13.8.4 Each bidder agrees as evidenced by his submission of a bid to comply with all terms of the Equal Employment Opportunity Clause of the Illinois Fair Employment Practices Commission.

§ 13.8.5 At all times Contractor shall remain in compliance with the Illinois Public Works Employment Discrimination Act (775 ILCS 10/1, et seq.,) and the Illinois Human Rights Act (775 ILCS 5/2-101, et seq.,) and in addition shall at all times comply with Section 2-105 of the Illinois Human Rights Act.

§ 13.8.6 By execution of this Contract, the Contractor understands, represents and warrants to the Owner that the Contractor and its Subcontractors (for which the Subcontractor takes responsibility to insure that they comply with the above-mentioned Acts) are in compliance with all requirements provided by the Acts set forth in Article 13 and that they will remain in

compliance for the entirety of the Work. A violation of any of the Acts set forth in this Article is cause for the immediate cancellation of the Contract. However, any forbearance or delay by the Owner in canceling this Contract shall not be considered as, and does not constitute, Owner's consent to such violation and a waiver of any rights the Owner may have, including without limitation, cancellation of this Contract."

C. Add Section 13.9 as follows:

"§ 13.9 PREVAILING WAGES

§ 13.9.1 The Contractor and all Subcontractors shall pay prevailing wages as established by the Illinois Department of Labor for each craft or type of work needed to execute the contract in accordance with the Prevailing Wage Act (820 ILCS 130/0.01 et seq.). The Contractor shall prominently post the current schedule of prevailing wages at the Contract site and shall notify immediately in writing all of its Subcontractors, of all changes in the schedule of prevailing wages. Any increases in costs to the Contractor due to changes in the prevailing rate of wage during the terms of any contract shall be at the expense of the Contractor and not at the expense of the Owner. The change order shall be computed using the prevailing wage rates applicable at the time the change order work is scheduled to be performed. The Contractor shall be solely responsible for maintain accurate records as required by the prevailing wage statute and shall be solely liable for paying the difference between prevailing wages and any wages actually received by laborers, workmen and/or mechanics engaged in the Work.

§ 13.9.2 The Contractor shall provide certified payroll records in accordance with the requirements established by the Prevailing Wage Act(820 ILCS 130/5) as amended 8/10/2005 by Illinois Public Act 94-0515."

1.10 ARTICLE 15 CLAIMS AND DISPUTES

A. § 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

1. Delete Section 15.1.6 in its entirety.

B. § 15.2 INITIAL DECISION

1. Delete Section 15.2.1 in its entirety and replace with the following:

"§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9 and 11.3.10, may be referred to the Initial Decision Maker for action. A decision by the Initial Decision Maker shall not be binding and shall not be required as a condition precedent to litigation."

END OF SECTION

SECTION 00 73 40
LABOR AND WAGE REQUIREMENTS

1.01 LABOR AND WAGE REQUIREMENTS

A. In the employment and use of labor, the Contractor and his subcontractors shall conform to the Illinois Statutory requirements regarding labor and wages.

B. Wage Guidelines:
   1. Prevailing Rate of Wages: All Contracts for the work herein are subject to the provisions of the Illinois Prevailing Wages Act (820 ILCS 130/et seq.) providing for the payment of prevailing rate of wages to all Laborers, Workmen, and Mechanics engaged on the work, which such provisions shall be applicable to all subcontractors and material men as well as the Contractor. The Owner may at any time inquire of the Contractor as to rates of wages being paid employees of the Contractor, any subontractor or material men, whereupon such information shall be promptly provided to the Owner.
      a. The terms "generally prevailing rate of hourly wages," "generally prevailing rate of wages," or "prevailing rate of wages," mean the hourly cash wage plus fringe benefits for health and welfare, insurance, vacations, and pensions paid generally, in the locality in which the work is being performed, to employees engaged in work of a similar character on public works.
   2. The Contractor shall not pay less than the rates of wages prevailing the District as determined by the Illinois Department of Labor to all Laborers, Mechanics and Workers performing any work under this Contract.
      a. Only such laborers, workers and mechanics as are directly employed by the Contractor or Subcontractors in actual construction work on the site of the Project, and laborers, workers and mechanics engaged in the transportation of materials and equipment to or from the site, but not in cluding the transportation by sellers and suppliers or the manufacture or processing of materials or equipment, in the execution of the Work shall be deemed to be employed on the Project for purposes of compliance with the Illinois Statutory requirements.
   3. The Contractor shall require all of its Subcontractors to comply with the requirements of the preceding paragraphs, which shall be incorporated in each and every subcontract for all or any portion of the Work.
   4. The Contractor will cooperate and coordinate his work with any subcontractors that the Owner has working on the Project at the same time.
   5. Future increases to wage rates and material cost over the course of the contract time will not be born by the Owner. Contractor to include in his Base Bid.

C. Certified Payroll Requirements: For all of the Contractor's, its Subcontractors and Sub-subcontractors' laborers, mechanics and other workers employed on the Project, the Contractor shall submit monthly, and with each Application For Payment, certified payroll records in accordance with State of Illinois, Department of Labor, 8/10/2005 Prevailing Wage Act Changes; "Certified Payroll Requirements" (Public Act 94-0515).

1.02 WAGE DETERMINATION SCHEDULE

A. Contact the Illinois Department of Labor for the most recent revisions to the Prevailing Rate of Wages.

END OF DOCUMENT

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: CITY OF AURORA - CITY CLERK AND BUDGET DEPARTMENT RENOVATION.

B. Owner's Name: City of Aurora.

C. Architect/Engineer's Name: Kluber Architects + Engineers.

D. The Project consists of the interior renovation of the current Payroll & Budget Department for the relocation of the City Clerk and Budget Department.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 52 00 - Agreement Form.

1.03 DESCRIPTION OF ALTERATIONS WORK

A. Scope of demolition and removal work is shown on drawings and specified in Section 02 41 00.

B. Scope of alterations work is shown on drawings.

C. HVAC: Alter existing system and add new construction, keeping existing in operation.

D. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

E. Fire Suppression Sprinklers: Alter existing system and add new construction, keeping existing in operation.

F. Fire Alarm: Alter existing system and add new construction, keeping existing in operation.

G. Security System: Alter existing system and add new construction, keeping existing in operation.

H. Owner will remove the following items before start of work:
   1. Existing fixtures, furnishings & equipment.

1.04 WORK BY OWNER

A. Items noted NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion. Some items include:
   1. Movable cabinets.
   2. Furnishings.

1.05 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Work by Others.
   3. Work by Owner.
   4. Use of site and premises by the public.

B. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

C. Time Restrictions:
   1. Limit conduct of especially noisy work to the hours of 6:00 am to 8:00 am.

D. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

1.07 WORK SEQUENCE

A. Coordinate construction schedule and operations with Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Section 00 52 00 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.

B. Section 00 72 00 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Section 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

1.03 SCHEDULE OF VALUES

A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect/Engineer for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values to the Architect/Engineer at earliest possible date, but no later than 14 days prior to first Pay Request Meeting.
   1. After review by the Architect/Engineer, revise and resubmit Schedule as directed.

E. Format: Utilize the Table of Contents of this Project Manual as a format for the listing of the Work.

F. Identify as separate line items on the Schedule the costs for the following items: Bonds, Insurance, Site Mobilization, each Allowance scheduled in Section 01 21 00, Construction Submittals, General Conditions, Overhead And Profit, Demonstration And Training, and Closeout Submittals.

G. Submit Schedule of Values in sufficient detail for the Architect/Engineer to use in evaluation of Applications for Payment.
   1. Itemize the cost of the work of:
      a. Contractor's own labor forces.
      b. Subcontractors.
      c. Suppliers of products and equipment.

H. Revise Schedule of Values to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect/Engineer for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

I. Submit one pencil/draft copy of each Application for Payment to the Architect/Engineer at least 7 days prior to the due date for the submission of the Application.

J. Contractor or Architect/Engineer may schedule a Pay Request Meeting to review the pencil/draft copy of the Application for agreement with the progress of the Work.

K. After receipt of Architect/Engineer's review comments, submit three final copies, signed and notarized, of each Application for Payment.

L. Include the following with the application:
   1. Transmittal letter as specified for submittals in Section 01 30 00.
   2. Construction progress schedule, revised and current as specified in Section 01 30 00.
   3. Contractor's partial waiver of lien in the amount of the Applicaiton for Payment as well as trailing partial waivers of lien for subcontractors and suppliers who were included in the previous Applicaiton for Payment, to the extent of that payment.
      a. When an Application shows completion of a subcontractor or supplier item, submit a final or full waiver for that item.
      b. Waivers of lien shall be submitted on forms and executed in a manner acceptable to the Owner.

4. Certified payroll records for the Contractor and for all Subcontractors and Sub-subcontractors employed on the Project who performed work on the Project during the Payment Period.
   a. Contractor shall assemble his and all subcontractor and sub-subcontractor records prior to submitting each Application for Payment.
   b. Applications for Payment submitted without certified payroll records or with incomplete certified payroll records will result in payment being delayed until the Contractor complies fully with the requirements set forth in the preceding paragraphs.
5. Affidavits attesting to products or equipment suitablly stored off-site in a bonded warehouse. Payments for materials stored off-site shall be conditioned upon submission of bills of sale, applicable insurance, and any other documentation or procedures satisfactory to the Owner to establish the Owner's title to such materials, or otherwise protect the Owner's interest.

M. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to Contract Documents.

B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect/Engineer will issue instructions directly to Contractor.

C. For other required changes, Architect/Engineer will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

D. For changes for which advance pricing is desired, Architect/Engineer will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within ten (10) days.

E. Contractor may propose a change by submitting a request for change to Architect/Engineer, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on work by separate or other contractors. Document any requested substitutions in accordance with Section 01 60 00.

F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Architect/Engineer for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect/Engineer.

3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.
4. For change ordered by Architect/Engineer without a quotation from Contractor, the amount will be determined by Architect/Engineer based on the Contractor's substantiation of costs as specified for Time and Material work.

G. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide the following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
   3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

H. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 70 00.
   2. Procedures outlined in Article 9 of the General Conditions as amended.
   3. Additional closeout procedures specified in Section 01 77 00.

C. The submittal of Final Waiver of Lien and the acceptance of the final payment by the Contractor shall be held to be a waiver of any and all claims against the Owner arising from, out of, or in any connection with the Contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 21 00
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contingency allowance.

1.02 RELATED REQUIREMENTS

A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, payroll, taxes and equipment rental will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by Change Order.

C. Bond, insurance, overhead and profit fees on Change Orders paid out of Contingency Allowances will not be permitted. The Contractor must carry in its Base Bid OH&P costs on Contingency Allowance funds expenditures.

D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

A. Contingency Allowance: Include in the Base Bid the stipulated sum of $20,000.00 for use upon Owner's instructions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Site mobilization meeting.

D. Progress meetings.

E. Construction progress schedule.

F. Submittals for review, information, and project closeout.

G. Architect/Engineer-provided CAD files.

H. Number of copies of submittals.

I. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions: Dates for applications for payment.

B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Architect/Engineer will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect/Engineer.
   3. Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.

4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract and Architect/Engineer.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Scheduling activities of a Geotechnical Engineer.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. General Contractor will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
1. Contractor.
2. Owner.
3. Architect/Engineer.
4. Contractor's superintendent.
5. Major subcontractors.

D. Agenda:
1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to Work.

E. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. If preliminary schedule requires revision after review, submit revised schedule within 7 days.

C. Submit updated schedule with each Application for Payment.

3.04 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect/Engineer for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.05 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.07 ARCHITECT/ENGINEER-PROVIDED CAD FILES

A. After the execution of the Contract, Architect/Engineer will provide, free of charge, upon receipt of a properly completed and signed request utilizing “Electronic Data Transfer Consent Form” at the end of this Specification Section, CAD files depicting graphic information for the project as follows:

1. Architectural Floor Plans: Column grid, walls, floors, stairs, doors, windows, room numbers, ceiling grid, mechanical diffusers, plumbing fixtures, sprinkler heads (if depicted in Bid Documents) and lights.

B. Contractor acknowledges and accepts that the Architectural Floor Plans do not contain structural, mechanical, electrical, plumbing, fire protection and other building systems information depicted in the Bidding Documents. Examples of information not contained in these files include, but are not limited to, title blocks, keynotes, schedules, mechanical ductwork and equipment, electrical device symbols, circuit numbers and home runs, plumbing equipment, piping runs and riser diagrams, and architectural/engineering text or details. No other CAD files, data or information will be provided.

C. Only requests from Prime Contractors will be honored. Subcontractors must obtain the files from their respective Prime Contractors.

D. In submitting a request, Contractor acknowledges that:
   1. Architect/Engineer bears no responsibility for the data or its transmission,
   2. Use of the data by the Contractor or his subcontractors in no way relieves the Contractor of his obligations under the Contract,
   3. Contractor is solely liable for any and all claims arising from any and all products generated by the Contractor or its Subcontractors employing the data,
   4. Contractor and its Subcontractors have a limited, non-exclusive license to use the data solely in connection with the Work of the Project, and that
   5. Architect/Engineer retains all rights, including copyright, to the data.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Small Size Sheets: Not Larger Than 11 x 17 inches. Submit two (2) paper copies, one of which will be retained by Architect/Engineer. Contractor shall make his own copies from the original returned by the Architect.
      a. Contractor's Option: In lieu of paper copies indicated above, submit in Adobe PDF electronic file format via email. Architect will return a reviewed copy in Adobe PDF electronic file format via email. Create PDFs at native size and right-side up; illegible files will be rejected.
   2. Large Size Sheets: Larger Than 11 x17 inches; 36 x 48 inches maximum. Submit two (2) paper copies, one of which will be retained by Architect/Engineer. Electronic file format (PDF or other) is NOT acceptable. Contractor shall make his own copies from the original returned by the Architect.

B. Documents for Information: Submit one copy.

C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect/Engineer.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
2. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.

B. Transmit each submittal with a copy of approved submittal form.

C. Transmit each submittal with AIA Form G810.

D. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

G. Deliver submittals to Architect/Engineer at business address.

H. Schedule submittals to expedite the Project, and coordinate submission of related items.

I. For each submittal for review, allow 20 days excluding delivery time to and from the Contractor.

J. Clearly identify variations from the Contract Documents. Regardless of the type of variation, Contractor is solely responsible for errors in the field that arise from submittal variations from the requirements of the Contract Documents if those variations were not expressly noted to specifically identify for and describe to the reviewer the nature of the variation from the Contract Documents.

K. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

L. Correlate submitted items with specified products; clearly indicate the specified product that corresponds to each submitted item.

M. When options or optional features available for a Product are indicated in a submittal, and selections for those options/features are indicated in the Contract Documents, identify on the submittal the selection indicated in the Contract Documents.

N. Provide space for Contractor and Architect/Engineer review stamps.

O. When revised for resubmission, using clouds, highlights or other means acceptable to the Architect, identify all changes made since previous submission. Resubmittals that do not clearly identify all changes may be delayed and/or returned to the Contractor unreviewed.

P. The Contractor is entitled to one (1) resubmittal of any Shop Drawing, Product Data, or Closeout Submittal item rejected by the Architect or returned by the Architect for further action. Thereafter, the Contractor shall pay the cost of all further Architect's reviews of Shop Drawing, Product Data or Closeout Submittal, at a rate of $200.00/hour. Cost of such further reviews will be deducted from the Contract Sum by Change Order.

Q. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

R. Submittals not requested will not be recognized or processed.

S. Submittal reviews may be delayed and/or submittals may be returned unreviewed for any of the following reasons:
   1. Submittals submitted outside the scheduled dates of the Submittal Schedule.
   2. Submittals are incomplete or are missing information.
   3. Submittals are not submitted in accordance with procedures outlined in this Section (i.e. spec Section number not indicated, missing Contractor's review stamp, submitted items not correlated with specified products).

END OF SECTION

ELECTRONIC DATA TRANSFER CONSENT FORM

Project Name: CITY OF AURORA - CITY CLERK & BUDGET DEPARTMENT INTERIOR RENOVATION
44 EAST DOWNER PLACE
AURORA, ILLINOIS 60507

Project No.: 19-130-1267

Owner: CITY OF AURORA

Your Work: _____

KLUBER, INC. (hereinafter referred to as "Kluber") an Illinois corporation, is providing electronic data to you solely at your request and for your convenience. By accepting and opening any of the electronic data files, you agree that Kluber bears no liability for the data or its transmission to you and that you are solely liable for any and all claims referring or relating to any and all products you, or your Subcontractors, may generate with the data.

You acknowledge that you have a limited non-exclusive license to use the information solely in connection with your work on the project captioned above, and that Kluber retains all rights, including copyright, to the data.

Acknowledged by: _____ _____
(Printed Name) (Signature)

Company: _____

Date: _____ Email: _____

Architectural Floor Plans are transmitted for the contractors' use as backgrounds for shop drawings and as-built drawings, and, as such, contain graphic information for column grid, walls, floors, stairs, doors, windows, room numbers, ceiling grid, lights, diffusers and sprinkler heads where indicated on Bid Documents. Plans do not contain title blocks, keynotes, schedules, mechanical ductwork and equipment, electrical device symbols, circuit numbers and home runs, plumbing equipment, piping runs and riser diagrams, and architectural/engineering text and details. Plans depict entire floors and are not formatted, partial plans as depicted in the Bidding Documents. Files are provided in R2013 .DWG format.)

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General.

B. Definitions.

C. Quality Assurance.

D. Regulatory Requirements.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary.

B. Section 01 42 00 - References.

1.03 GENERAL

A. Comply with all applicable laws, rules, regulations, codes and ordinances.

B. If the Contractor observes that the Contract Documents may be at variance with specified codes, notify the Architect/Engineer immediately. Architect/Engineer shall issue all changes in accordance with the General Conditions.

C. It shall not be the Contractor's primary responsibility to make certain that the Contract Documents are in accordance with all applicable laws, rules and regulations, however, when the Contractor performs work knowing or having reason to know that the work in question is contrary to applicable laws, rules, and regulations, and fails to notify the Architect/Engineer, the Contractor shall pay all costs arising therefrom.

1.04 DEFINITIONS

A. Definitions:
   1. Codes: Codes are statutory requirements, rules or regulations of governmental entities.
   2. Standards: Standards are requirements that have been established as accepted criteria, set general consent.

1.05 QUALITY ASSURANCE

A. The Architect/Engineer has designed the project to applicable code requirements and has copies of said codes available for the Contractor's inspection.

B. The Contractor shall:
   1. Ensure that copies of codes and standards referenced herein or specified in individual specifications sections are available to Contractor's personnel, agents, and Sub-Contractors.
   2. Ensure that Contractor's personnel, agents, and Sub-Contractors are familiar with the workmanship and requirements of applicable codes and standards.

1.06 REGULATORY REQUIREMENTS

A. Source and Requirements: Verify amendments with local code officials.
   1. Local code requirements:
      a. ICC International Building Code, 2015 Edition.
      b. ICC International Mechanical Code, 2015 Edition.
      c. ICC International Fire Code, 2015 Edition.
      d. ICC International Fuel and Gas Code, 2015 Edition.
      e. ICC International Existing Building Code, 2015 Edition.
      f. ICC Electrical Code, 2014 Edition.
   2. State code requirements:
      a. Capital Development Board (CDB):
         1) ICC A117.1 and its references to th 2010 Americans with Disabilities Act.
         2) Illinois Energy Conservation Code (ICC International Energy Conservation Code, 2012 Edition, with State of Illinois modifications.
      b. Illinois Department of Labor (IDOL): Safety Glazing Materials Act - Illinois Revised Statutes, chap. 111 1/2, paragraph 3101, et seq.
      c. Illinois Department of Public Health (IDPH):
         1) Illinois Plumbing Code (Illinois Administrative Code, Title 77, Chapter I, Subchapter r, Part 890).
      d. Illinois Environmental Protection Agency (IEPA):
         1) Air-Pollution Standards.
         2) Noise Pollution Standards.
         3) Water Pollution Standards.
         4) Public Water Supplies
         5) Solid Waste Standards.
         6) Illinois Recommended Standards for Sewage Works (Illinois Administrative Code, Title 35, Subtitle C, Chapter II, Part 370).
      e. Illinois State Fire Marshal (OSFM):
         1) Boiler & Pressure Vessel Safety Code (Illinois Administrative Code, Title 44, Chapter I, Part 120).
         2) Illinois Rules & Regulations for Fire Prevention & Safety (as amended).
         3) Gasoline and Volatile Oils (Illinois Revised Statutes, chap. 17 1/2, paragraph 31, et seq.).
   3. Information and Requirements for Utility Services: Local utility companies.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 42 00
REFERENCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drawing symbols, abbreviations and acronyms.

B. Definitions of terms used throughout the Contract Documents.

C. Explanation of specification format and content.

D. Requirements relating to referenced standards.

E. Applicability of referenced standards.

F. List of industry organizations and certain of their respective documents.

1.02 DRAWING SYMBOLS AND CONVENTIONS

A. Abbreviations and graphic symbols are defined on the General Notes, Symbols & Abbreviations sheet of the drawings.

B. Generally, symbols used on the mechanical and electrical drawings conform to those recommended by ASHRAE, though, where appropriate, these symbols are supplemented by more specific symbols as recommended by ASME, ASPE, or the IEEE.

1.03 DEFINITIONS

A. Where the terms "indicated", "noted", "scheduled", "shown", or "specified" are used it is to help locate the reference; no limitation on location is intended except as specifically noted.

B. Where the terms "directed", "requested", "authorized", "approved", are used as in "directed by the Architect/Engineer", no implied meaning shall be construed to extend the Architect/Engineer's responsibilities into the Contractor's purview of construction supervision.

C. Where the term "approved" is used in conjunction with the Architect/Engineer's action on submittals, requests or applications it is limited to the duties of the Architect/Engineer as described in the Agreement, and the General and Supplemental Conditions of the Contract. Such use of the term "approval" shall not limit or release the Contractor from his responsibility to fulfill Contract requirements.

D. Where the term "regulations" is used it means all applicable statutes, laws, ordinances, and orders issued by authorities having jurisdiction, as well as construction industry standards, rules, or conventions that address performance of the Work.

E. Where the term "furnish" is used it means supply, deliver, and unload to the construction site ready for assembly and incorporation into the Work.

F. Where the term "install" is used it is meant to describe operations at the job site to include unloading, assembling, placing, anchoring, finishing, protecting, cleaning and all other similar operations required to fully incorporate an item into the Work.

G. Where the term “provide” is used it means “furnish and install” as defined above.

H. The "Project Site" is the space available to the Contractor for performance of construction activities. The Project Site may be for the exclusive use of the Contractor and his activities or may be used in conjunction with others with others performing other construction or related activities on the Project. The Extent of the Project Site is indicated on the drawings.

1.04 SPECIFICATION FORMAT AND CONTENT

A. These Specifications are based on the Construction Specification Institute's 49 Division format and numbering system.

B. Language used in the Specifications and other Contract Documents is an abbreviated type. Implied words and meanings will appropriately interpreted.

C. Requirements expressed in imperative and streamlined language are to be performed by the Contractor. At certain locations in the text, subjective language may be used to describe responsibilities that must be fulfilled indirectly by the Contractor or others.
   1. Whenever a colon (:) is used within a sentence or phrase, it shall be construed to mean the words "shall be".

D. Use of certain terms such as "carpentry" is not intended to imply that certain activities must be performed by accredited or unionized individuals of a corresponding generic name. The Specifications do, however, require that certain construction activities shall be performed by specialists who are recognized experts in the operations to be performed. Specialists shall be used for said activities, however the final responsibility for fulfilling the requirements of the Contract remains the Contractor's.

1.05 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.

C. Obtain copies of standards when required by the Contract Documents.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from the Architect/Engineer before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect/Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

1.06 APPLICABILITY OF INDUSTRY STANDARDS

A. Construction industry standards shall have the same force and effect as if bound or copied directly in the Contract Documents, except where more stringent requirements are specified. All such applicable standards are made a part of the Contract Documents by reference.

1. Where compliance with two or more standards are referenced and conflicting requirements for quality or quantities occur, comply with the more stringent requirements. Refer questions regarding apparently conflicting standards to the Architect for a decision before proceeding.
2. The standard of quality or quantity levels specified, shown, or referenced shall be the minimum to be provided or performed. Refer questions regarding standards of minimum quality or quantity to the Architect before proceeding.

1.07 CONSTRUCTION INDUSTRY ORGANIZATIONS AND DOCUMENTS

A. AABC -- ASSOCIATED AIR BALANCE COUNCIL

B. AAMA -- AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION

C. ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

D. ADC -- AIR DIFFUSION COUNCIL

E. AGA -- AMERICAN GAS ASSOCIATION

F. ANSI -- AMERICAN NATIONAL STANDARDS INSTITUTE

G. APA -- APA - THE ENGINEERED WOOD ASSOCIATION

H. ASCA -- ARCHITECTURAL SPRAY COATERS ASSOCIATION

I. ASHRAE -- AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.

J. ASME -- THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
   1. ASME A17.1 - Safety Code for Elevators and Escalators; 2004.

K. ASTM -- AMERICAN SOCIETY FOR TESTING AND MATERIALS

L. AWI -- ARCHITECTURAL WOODWORK INSTITUTE

M. AWPA -- AMERICAN WOOD-PRESERVERS' ASSOCIATION

N. BHMA -- BUILDERS HARDWARE MANUFACTURERS ASSOCIATION

O. CISCA -- CEILINGS & INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION

P. CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION

Q. CRI -- CARPET AND RUG INSTITUTE

R. CTI -- COOLING TECHNOLOGY INSTITUTE

S. DHI -- DOOR AND HARDWARE INSTITUTE

T. ESD -- ELECTROSTATIC DISCHARGE ASSOCIATION

U. FM -- FACTORY MUTUAL RESEARCH CORPORATION

V. GA -- GYPSUM ASSOCIATION

W. GANA -- GLASS ASSOCIATION OF NORTH AMERICA

X. GREENSEAL -- GREEN SEAL

Y. ICC -- INTERNATIONAL CODE COUNCIL, INC.

Z. IEEE -- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

AA. ISO -- INTERNATIONAL STANDARDS ORGANIZATION

AB. MPI -- MASTER PAINTERS INSTITUTE (MASTER PAINTERS AND DECORATORS ASSOCIATION)

AC. NAAMM -- THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

AD. NCMA -- NATIONAL CONCRETE MASONRY ASSOCIATION

AE. NEBB -- NATIONAL ENVIRONMENTAL BALANCING BUREAU

AF. NECA -- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

AG. NELMA -- NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION, INC.

AH. NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

AI. NFPA -- NATIONAL FIRE PROTECTION ASSOCIATION

AJ.NGA -- NATIONAL GAS ASSOCIATION

AK. NPCA -- NATIONAL PAINT AND COATINGS ASSOCIATION

AL. NRCA -- NATIONAL ROOFING CONTRACTORS ASSOCIATION

AM. PCA -- PORTLAND CEMENT ASSOCIATION

AN. PIMA -- POLYISOCYANURATE INSULATION MANUFACTURERS ASSOCIATION

AO. SDI -- STEEL DOOR INSTITUTE

AP. SGCC -- SAFETY GLAZING CERTIFICATION COUNCIL

AQ. SIGMA - SEALED INSULATING GLASS MANUFACTURERS ASSOCIATION (See IGMA)

AR. SMACNA -- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC.

AS. SSPC -- THE SOCIETY FOR PROTECTIVE COATINGS

AT. SWRI -- SEALANT, WATERPROOFING AND RESTORATION INSTITUTE

AU. UL -- UNDERWRITERS LABORATORIES INC.

AV. USG -- UNITED STATES GYPSUM
1. USG (HB) - Gypsum Construction Handbook; Seventh Edition.

AW. USGBC -- U. S. GREEN BUILDING COUNCIL

AX. WWPA -- WESTERN WOOD PRODUCTS ASSOCIATION

1.08 UNITED STATES GOVERNMENT AND RELATED AGENCIES/DOCUMENTS

A. CFR -- CODE OF FEDERAL REGULATIONS

B. CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION

C. EPA -- ENVIRONMENTAL PROTECTION AGENCY

D. FS -- FEDERAL SPECIFICATIONS AND STANDARDS (General Services Administration)

E. GSA -- U.S. GENERAL SERVICES ADMINISTRATION

F. USGS -- UNITED STATES GEOLOGICAL SURVEY

1.09 STATE GOVERNMENT AND RELATED AGENCIES/DOCUMENTS

A. CDB -- ILLINOIS CAPITAL DEVELOPMENT BOARD

B. IDOL -- ILLINOIS DEPARTMENT OF LABOR

C. IDPH -- ILLINOIS DEPARTMENT OF PUBLIC HEALTH

D. IEPA -- ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

E. OSFM -- OFFICE OF THE ILLINOIS STATE FIRE MARSHAL.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

1.02 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power , consisting of connection to existing facilities.

B. Existing facilities may be used.

1.03 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. One (1) mobile cellular telephone for each of Contractor's and any Subcontractor's field personnel.

1.04 TEMPORARY SANITARY FACILITIES

A. Use of existing facilities is permitted.

B. Maintain daily in clean and sanitary condition.

C. At end of construction, return facilities to same or better condition as originally found.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way .

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 EXTERIOR ENCLOSURES

A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.07 INTERIOR ENCLOSURES.

A. Provide temporary partitions and ceilings as indicated 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.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.08 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.09 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.10 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

E. Procedures for Owner-supplied products.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. Designed, manufactured, and tested in accordance with industry standards.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, or equal to or superior product as approved by Architect in accordance with Section L of the Instruction to Bidders.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for equal to or superior to substitution for any manufacturer not named.

2.03 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site and place in location directed by Owner's representative; obtain Owner's signature on receipt for delivery prior to final payment. Submit signed receipts with Closeout Submittals.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 25 00 - Substitution Procedures.

B. Substitutions Prior To Bid Opening: Architect/Engineer will consider a written request for substitution provided that such request is received at least seven (7) days prior to the Bid opening date. Requests received after that time will not be considered.
   1. If a request is approved, the Architect/Engineer will issue and appropriate addendum not less than three (3) days prior to the Bid opening date.

C. Substitutions After Notice of Award: Architect/Engineer and Owner will consider a request for substitution only under one or more of the following conditions:
   1. Substitution is required for compliance with final interpretation of code requirements or insurance regulations.
   2. Specified product is not available through no fault of the Contractor.
   3. Specified product is not compatible with other specified materials/equipment.
   4. Manufacturer will not certify or warranty specified product as required.
   5. Owner shall have final approval of any substitutions requested after notice of award in accordance with Section 3.01B.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Agrees to reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction ove the Project.

E. Substitutions of products or product characteristics/components/accessories will not be considered when they are indicated or implied on Contractor's submittals, without separate written request, or when acceptance will require revision to the Contract Documents, whether rejection of said subsititutions is expressly identified by Architect/Engineer on Contractor's submittals or not.

3.02 OWNER-SUPPLIED PRODUCTS

A. See Section 01 10 00 - Summary for identification of Owner-supplied products.

B. Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
2. Arrange and pay for product delivery to site.
3. On delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:
1. Review Owner reviewed shop drawings, product data, and samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.
5. Make final connections to Owner-provided equipment, and test equipment.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

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SUBSTITUTION REQUEST FORM

PROJECT: CITY OF AURORA – CITY CLERK & BUDGET DEPARTMENT INTERIOR RENOVATION

SPECIFIED ITEM: _____

Specification Section	Page	Paragraph	Description

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: _____

_____

Attached data includes project description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents which the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. The proposed substitution does not affect dimensions shown on drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

_____
Printed Name

_____
Signature Date

_____
Firm

_____
Telephone

_____
Email

Attachments (list):

For Use By The Architect/Engineer:

☐ Accepted ☐ Accepted As Noted

☐ Not Accepted ☐ Received Too Late

By: _____

Date: _____

Remarks:

Bloomington Office
2401 East Washington Street
Bloomington, Illinois 61704
309.430.6460

Chicago Office
222 South Riverside Street Plaza
Chicago, Illinois 60606
312.667.5670

Aurora Office
10 South Shumway Avenue
Batavia, Illinois 60510
630.406.1213

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

C. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.

D. Section 01 50 00 - Temporary Facilities and Controls: Temporary interior partitions.

E. Section 01 77 00 - Closeout Procedures: Additional requirements for Project Closeout.

F. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

G. Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

H. Section 07 84 00 - Firestopping.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.

2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
3. Submit surveys and survey logs for the project record.

C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
2. Identify demolition firm and submit qualifications.
3. Include a summary of safety procedures.

D. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
6. Include in request:
a. Identification of Project.
b. Location and description of affected work.
c. Necessity for cutting or alteration.
d. Description of proposed work and products to be used.
e. Alternatives to cutting and patching.
f. Effect on work of Owner or separate Contractor.
g. Written permission of affected separate Contractor.
h. Date and time work will be executed.

E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.
1. Minimum of 10 years of documented experience.

B. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect/Engineer. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

C. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State in which the Project is located. Employ only individual(s) trained and experienced in establishing and maintaining horizontal and vertical control points necessary for laying out construction work on project of similar size, scope and/or complexity.

D. For design of temporary shoring and bracing, employ a Professional Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
   1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
   2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

C. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Minimize amount of bare soil exposed at one time.
   2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
   4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
   1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
   2. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.
   3. Indoors: Limit conduct of especially noisy interior work to the hours of 6 pm to 7 am.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

F. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.07 COORDINATION

A. See Section 01 10 00 for occupancy-related requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect/Engineer four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect/Engineer of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Control datum for survey is that indicated on drawings.

E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

F. Promptly report to Architect/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect/Engineer.

H. Utilize recognized engineering survey practices.

I. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

J. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

K. Periodically verify layouts by same means.

L. Maintain a complete and accurate log of control and survey work as it progresses.

M. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect/Engineer before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
   2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.
   4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.

5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. See Section 01 10 00 for other limitations on outages and required notifications.
      c. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.
   2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
   3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect/Engineer review and request instructions.
   4. Trim existing wood doors as necessary to clear new floor finish. Refinish trim as required.

H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

I. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
   2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.

J. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.

G. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

H. Prohibit traffic from landscaped areas.

I. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect/Engineer and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. See Section 01 79 00 - Demonstration and Training.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing HVAC systems: See Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC.

3.13 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
   1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Clean filters of operating equipment.

G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

H. Clean site; sweep paved areas, rake clean landscaped surfaces.

I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. See Section 01 77 00 for additional requirements.

B. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect/Engineer and Owner.

C. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

D. Notify Architect/Engineer when work is considered ready for Architect/Engineer's Substantial Completion inspection.

E. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect/Engineer's Substantial Completion inspection.

F. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect/Engineer's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect/Engineer.

G. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

H. Accompany Project Coordinator on Contractor's preliminary final inspection.

I. Notify Architect/Engineer when work is considered finally complete and ready for Architect/Engineer's Substantial Completion final inspection.

J. Complete items of work determined by Architect/Engineer listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Substantial Completion Procedures.

B. Final Completion Procedures.

1.02 RELATED REQUIREMENTS:

A. Section 01 10 00 - Summary.

B. Section 01 7800 - Closeout Submittals.

1.03 SUBSTANTIAL COMPLETION PROCEDURES

A. Pre-Substantial Completion Conference:
   1. General Contractor to schedule a Pre-substantial Completion Conference 15 days prior to the date of Substantial Completion, prepare an agenda with copies for the participants and preside over the meeting.
   2. Attendance Required: Contractor, Architect/Engineer and Owner.
   3. Minimum Agenda:
      a. Schedule dates of Substantial Completion and Owner occupancy.
      b. Schedule dates for Initial Punch Lists of respective Subcontractors to be produced.
      c. Schedule date for written request for Substantial Completion.
      d. Schedule target date for completion of Initial Punch List items.
      e. Schedule delivery times for Owner-furnished items to be installed by Contractor, Owner's own forces or others under separate Contracts.
      f. Schedule dates for Demonstration and Training of equipment and systems specified.
      g. Schedule completion dates of testing and balancing reports for engineered Systems.
      h. Scheduling and Sequencing of Construction operations around areas partially occupied.
      i. Review job site security during transition of Owner occupancy.
      j. Schedule dates for final inspections from authorities having jurisdiction for Occupancy Permits.
      k. Review protocol for claims from potential move-in damage.
      l. Review procedures for final cleaning.
      m. Review potential concerns regarding environmental conditions.
   4. Record minutes and distribute copies within three days after meeting to participants and those affected by decisions made.

B. Substantial Completion Procedures will be in accordance with the General Conditions of the Contract for Construction, Article 9.8 and include the following:
   1. When the Work or a portion of the Work is considered to be substantially complete, the Contractor inspects the project and prepares a comprehensive list of outstanding items to be completed or corrected, Initial Punch List.
   2. Contractor submits notice of Substantial Completion.
   3. Contractor completes items on the Initial Punch List.

4. Architect/Engineer inspects the project to verify substantial completion and prepares a Final Punch List.
5. Architect/Engineer prepares Certificate of Substantial Completion, acceptance is required by Owner and Contractor.

1.04 FINAL COMPLETION PROCEDURES

A. Final Completion Procedures will be in accordance with the General Conditions of the Contract for Construction, Article 9.10, and include the following:
   1. When items on Initial and Final Punch Lists are complete, the Contractor submits notice of final completion and final application for payment.
   2. Contractor submits Final Closeout Submittals as specified in Section 01 78 00.
   3. Architect inspects project and verifies the Work is acceptable and conforms with the Contract Documents.
   4. Architect processes final application for payment and closeout submittals.

1.05 CORRECTION PERIOD

A. Correction Period commences on the date of Substantial Completion and expires two years from that date.

B. Owner: document non-conforming or defective work over course of Correction Period. Notify Contractor in writing of nonconforming or defective work. Copy Architect/Engineer.
   1. Life safety issues requiring immediate corrective work: Contact Contractor for action.

C. Post Construction Walk Through:
   1. Time: eleven months after the date of Substantial Completion convene a meeting on site.
   2. Attendees: Architect/Engineer, Owner's Representative, End User and Maintenance Staff.
   3. Minimum Agenda:
      a. Review Owner's list of non-conforming or defective work.
      b. Conduct a walk through of the building and grounds
      c. Prepare a list of additional non-conforming or defective work items.
   4. Architect/Engineer:
      a. Prepare written report of findings within two weeks of meeting.
      b. Notify Contractor of impending corrective work requiring action.
      c. Monitor execution of corrective Work.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTION - NOT USED.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

C. Individual Product Sections: Specific requirements for operation and maintenance data.

D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect/Engineer with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Include color coded wiring diagrams as installed.

E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

G. Provide servicing and lubrication schedule, and list of lubricants required.

H. Include manufacturer's printed operation and maintenance instructions.

I. Include sequence of operation by controls manufacturer.

J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

K. Provide control diagrams by controls manufacturer as installed.

L. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

M. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

N. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

O. Include test and balancing reports.

P. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

D. Prepare data in the form of an instructional manual.

E. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

F. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

G. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect/Engineer, Consultants, Contractor and subcontractors, with names of responsible parties.

H. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

I. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

J. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

K. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

L. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.

a. Source data.
b. Product data, shop drawings, and other submittals.
c. Operation and maintenance data.
d. Field quality control data.
e. Photocopies of warranties and bonds.

4. Design Data: To allow for addition of design data furnished by Architect/Engineer or others, provide a tab labeled "Design Data" and provide a binder large enough to allow for insertion of at least 20 pages of typed text.
   a. Operating instructions.
   b. Maintenance instructions for equipment and systems.
   c. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

F. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

G. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 01 79 00
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products and systems where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance is required for:
   1. All software-operated systems.
   2. HVAC systems and equipment.
   3. Electrical systems and equipment.
   4. Items specified in individual product Sections.

C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
   1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
   2. Finishes, including flooring, wall finishes, ceiling finishes.
   3. Fixtures and fittings.

1.02 RELATED REQUIREMENTS

A. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.

B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Training Plan: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
   1. Submit to Architect/Engineer for transmittal to Owner.
   2. Submit not less than four weeks prior to start of training.
   3. Revise and resubmit until acceptable.
   4. Provide an overall schedule showing all training sessions.
   5. Include at least the following for each training session:
      a. Identification, date, time, and duration.
      b. Description of products and/or systems to be covered.
      c. Name of firm and person conducting training; include qualifications.
      d. Intended audience, such as job description.
      e. Objectives of training and suggested methods of ensuring adequate training.
      f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
      g. Media to be used, such a slides, hand-outs, etc.
      h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Reports:
   1. Identification of each training session, date, time, and duration.
   2. Sign-in sheet showing names and job titles of attendees.

3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

1.04 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
   1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
   2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B. Demonstration may be combined with Owner personnel training if applicable.

C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
   1. Perform demonstrations not less than two weeks prior to Substantial Completion.
   2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
   1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

A. Conduct training on-site unless otherwise indicated.

B. Owner will provide classroom and seating at no cost to Contractor.

C. Provide training in minimum two hour segments.

D. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. The location of the O&M manuals and procedures for use and preservation; backup copies.
   2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   3. Typical uses of the O&M manuals.

F. Product- and System-Specific Training:
   1. Review the applicable O&M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
   3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
   4. Provide hands-on training on all operational modes possible and preventive maintenance.
   5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
   6. Discuss common troubleshooting problems and solutions.
   7. Discuss any peculiarities of equipment installation or operation.
   8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
   9. Review recommended tools and spare parts inventory suggestions of manufacturers.
   10. Review spare parts and tools required to be furnished by Contractor.
   11. Review spare parts suppliers and sources and procurement procedures.

G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 50 00 - Temporary Facilities and Controls: Protective barriers and waste removal.

C. Section 01 70 00 - Execution and Closeout Requirements: Project conditions and existing construction to remain.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

A. Remove portions of existing building surfaces to accommodate new materials installation.

B. Remove other items indicated, for salvage, relocation, and recycling.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 70 00.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Provide, erect, and maintain temporary barriers and security devices.
   3. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   5. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

C. If hazardous materials are discovered during removal operations, stop work and notify Architect/Engineer and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

D. Perform demolition in a manner that maximizes salvage and recycling of materials.

1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

3.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction are based on casual field observation and existing record documents only.
   1. Verify that construction are as shown.
   2. Report discrepancies to Architect/Engineer before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 .

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. See Section 01 10 00 for other limitations on outages and required notifications.
   4. Verify that abandoned services serve only abandoned facilities before removal.
   5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

3.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire retardant treated wood materials.

1.02 RELATED REQUIREMENTS

A. Section 07 72 00 - Roof Accessories: Prefabricated roof curbs.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

C. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

D. PS 1 - Structural Plywood; 2009.

E. PS 20 - American Softwood Lumber Standard; 2010.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 CONSTRUCTION PANELS

A. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.03 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

2.04 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.

B. Fire Retardant Treatment:
   1. Interior Type A: AWPA Use Category UCFA, Commodity Specification H (Treatment C20 for lumber and C27 for plywood), low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E 84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat rough carpentry items as scheduled.
      c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

E. Provide the following specific non-structural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.
   7. Chalkboards and marker boards.
   8. Wall paneling and trim.
   9. Joints of rigid wall coverings that occur between studs.

3.03 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

3.04 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
   1. Use plywood or other acceptable structural panels at building corners, for not less than 96 inches, measured horizontally.

3.05 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

A. Waste Disposal:
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

3.08 SCHEDULES

A. Roof Blocking: Pressure preservative treated.

B. Blocking in Gypsum Board Walls: Fire retardant treated.

C. Plywood Sheathing for backing in Gypsum Board Walls: Fire retardent treated.

END OF SECTION

SECTION 06 41 00
CUSTOM CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Hardware.

C. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

A. Section 12 36 00 - Countertops.

1.03 REFERENCE STANDARDS

A. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2009.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2016, with Errata (2018).

D. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, fastening methods, jointing details, and accessories, hardware locations and schedule of finishes.
   1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.
   2. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
   1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Reject and return to fabricator units that are missing hardware components.

B. Protect units from moisture damage.

1.08 FIELD CONDITIONS

A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 CABINETS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Cabinets:
   1. Finish - Exposed Exterior Surfaces: Decorative laminate.
   2. Finish - Exposed Interior Surfaces: Decorative laminate.
   3. Finish - Semi-Exposed Surfaces: Decorative laminate
   4. Finish - Concealed Surfaces: Manufacturer's option.
   5. Door and Drawer Front Edge Profiles: Square edge with thick applied band.
   6. Door and Drawer Front Retention Profiles: Removable stop.
   7. Casework Construction Type: Type A - Frameless.
   8. Interface Style for Cabinet and Door: Style 1 - Overlay; flush overlay.
   9. Grained Face Layout for Cabinet and Door Fronts: Flush panel.
      a. Premium Grade:
         1) Provide vertical run and match for doors, drawer fronts and false fronts within each cabinet unit.
         2) Provide well-matched doors, drawer fronts and false fronts across multiple cabinet faces in one elevation.
         3) Cathedral Grain: Point grain crown up and run in the same direction for entire project.
   10. Cabinet Design Series: As indicated on drawings.
   11. Adjustable Shelf Loading: 50 lbs. per sq. ft.
      a. Deflection: L/144.
   12. Casework Integrity: Comply with Acceptance Level requirements of AWI/AWMAC/WI (AWS) Appendix A for the following tests.
      a. Structural Integrity Test - Base Cabinet.
      b. Concentrated Load Test - Base Cabinet.
      c. Torsion Test - Base Cabinet.
      d. Structural Integrity Test - Wall Cabinet.
      e. Door Durability Test.
      f. Door Impact Test.
      g. Door Hinge Test.
      h. Drawer Bottom Impact Test.
      i. Drawer Support Test.
      j. Drawer and Door Pull Test.
      k. Drawer Rolling Load Test.
      l. Shelf Load Test.
   13. Drawer Construction Technique: Dovetail joints.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 PANEL MATERIALS

A. Medium Density Fiberboard (MDF): ANSI A208.2; type as specified in AWI/AWMAC/WI (AWS); composed of cellulosic fibers pressure bonded with moisture resistant adhesive to suit application; sanded faces; thicknesses as specified under AWI/AWMAC/WI (AWS) Section 10.4.7 for each component type.
   1. Use for cabinet and countertop components, including cabinet backs (1/2" min.) and drawer bottoms (1/2" min.), unless another material is indicated on drawings.
   2. Use as core for decorative laminate-faced panels unless otherwise indicated.

B. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 - Tempered, 1/4 inch thick, smooth two sides (S2S); use for dividers, mail slots and other components specifically indicated on drawings.

2.04 LAMINATE MATERIALS

A. Manufacturers:
   1. Wilsonart LLC: www.wilsonart.com.
   2. Substitutions: Not permitted.

B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

C. Provide specific types as indicated.
   1. Horizontal Surfaces: HGS, 0.048 inch nominal thickness, through color, color as selected, finish as indicated.
   2. Vertical Surfaces: VGS, 0.028 inch nominal thickness, through color, color as selected, finish as indicated.
   3. Post-Formed Horizontal Surfaces: HGP, 0.039 inch nominal thickness, color as selected, finish as indicated.
   4. Post-Formed Vertical Surfaces: VGP, 0.028 inch nominal thickness, color as selected, finish as indicated.
   5. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, finish as indicated.
   6. Laminate Backer: BKL, nominal thickness to match that of opposing face sheet, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.05 COUNTERTOPS

A. Countertops are specified in Section 12 36 00.

2.06 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Plastic Edgebanding: Extruded 3mm PVC or ABS, flat shaped; smooth finish; bonded to edge of component; of width to match component thickness. Provide "flexible" PVC material for curved component edges.

1. Manufacturers:
   a. Charter Industries: www.charterindustries.com.
   b. EdgeCo, Inc.: www.edgecoinc.com.
   c. Frama-Tech, Inc.: www.framatech.net.
   d. Teknaform: www.teknaform.com.
2. Color: Custom, to match selected laminate materials colors and patterns.
3. Use at exposed edges of shelves, cabinet doors, and cabinet drawers.

C. Fasteners: Size and type to suit application.

D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

E. Concealed Joint Fasteners: Threaded steel.

F. Grommets for Holes in Countertops: Molded plastic; 2½ inch diameter; matching cap with slot for cord passage; flip-top tab in cap which closes cord slot when not in use.
1. Provide one (1) grommet per 6 lineal feet of countertop on the Project, and also where specifically indicated on the Drawings. Coordinate exact locations in field with Owner.
2. Color(s): As selected by Owner from manufacturer's full line.
3. Product: Doug Mockett & Company, Inc. #EDP3: www.mockett.com.

2.07 HARDWARE

A. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch spacing adjustments.
1. Manufacturer: Knape & Vogt Manufacturing Company: www.kv.com.
2. Standards: #255 ZC zinc coated steel pilaster strips.
3. Support Clips for Standards: #239 ZC zinc-plated steel.
4. Pin Supports for drilled holes: #333 ZC zinc-plated steel.
5. Use for adjustable shelving within cabinet assemblies.
6. Other acceptable manufacturers:
   a. John Sterling Company: www.johnsterling.com.

B. Adjustable Shelf Supports: Standard back-mounted system using surface mounted metal shelf standards and coordinated cantilevered shelf brackets, for nominal 1 inch spacing adjustments.
1. Heavy Duty Standards and Brackets:
   a. Product: #85 standards and #185 brackets manufactured by Knape & Vogt Manufacturing Company: www.kv.com.
   b. Finish: Electroplated, Anachrome.
   c. Use for wall-attached adjustable shelving

C. Shelf and Rod Supports: Standard back-mounted system using surface mounted metal shelf brackets, white finish, for nominal 1 inch spacing adjustments.
1. Product: #1195 WH Heavy Duty Shelf and Rod Support manufactured by Knape & Vogt Manufacturing Company: www.kv.com.
2. Product: #RP-0045-WT manufactured by John Sterling Corporation: www.johnsterling.com.

3. Product: #858-WH manufactured by EPCO Sales, LLC: www.epcohardware.com.
4. Closet Rods: 1-5/16" o.d. chromed steel tubing. Provide support flanges at each end.
5. Use for closet shelves and rods.

D. Drawer and Door Pulls: "U" shaped 10 mm dia. steel wire pull, with nickel plated matte finish, 96 mm centers. Provide two (2) pulls for drawers greater then 24 inches wide.
   1. Product: 116.09.617 or 116.09.617.AL manufactured by Hafele America Co.: www.hafele.com.

E. Cabinet Locks: Cam-type to suit door/drawer application, non-captive key operation, steel with chrome finish.
   1. Manufacturer:
      a. CompX International, Inc.: www.compxnet.com.
      b. Substitutions: Not permitted.
   2. Products: CompX Timberline Series.
      a. Door Locks: 290 Series.
      b. Drawer Locks: 280 Series.
      c. Locks for Doors Taller Than 48": System 260 Wardrobe Lock.
      d. Double Door Locks: 250 Series, complete with strike plates.
   3. Cam Rotation: 180° CW turn to unlock; 180° CCW turn to lock. Key removable in both locked and unlocked positions.
   4. Core Type: Flat key, 5 disc tumbler.
   5. Keying: Doors and drawers keyed alike per room and master keyed.
   6. Strikes: Provide to match specified lock requirements. Notching or routing of cabinet panel is acceptable where appropriate to the specified lock application/operation.
   7. Provide one lock (1) per drawer, one lock (1) per single door and (1) lock per paired set of doors.
      a. For paired cabinet doors up to 48" high, provide double door lock lock on right-hand leaf.
      b. For paired cabinet doors taller than 48" high, provide wardrobe lock on right-hand leaf and double door latches at top and bottom of cabinet to secure left-hand leaf.
      c. Locate drawer locks at top center of drawers, unless another location is indicated on the Drawings.
      d. Locate door locks at the top latch side of door for base cabinets and at the bottom latch side of door for wall cabinets, unless another location is indicated on the Drawings.
   8. Provide two keys per lock and 8 master keys.

F. Drawer Slides:
   1. Type: Full extension.
   2. Static Load Capacity: Heavy Duty grade; 100 pounds, minimum.
   3. Mounting: Side mounted.
   4. Stops: Positive type.
   5. Features: Provide soft-closing type, with lever disconnect and vertical drawer adjustment.
   6. Manufacturers:
      a. Accuride International, Inc; 3634 EC Easy-Close Heavy-Duty Slides: www.accuride.com.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

G. Door Hinges: European style concealed self-closing type, steel with satin finish, allowing 3-dimensional adjustment. Provide complete with black plastic cover caps, and manufacturer's recommended mounting plates with dowel inserts and fasteners.
   1. Manufacturers:
      a. Grass America Inc.; 165 Degree Snap On 3000 Series: www.grassusa.com.
      b. Hardware Resources; 170 Degree Basic Clip On with Dowels #248.0M73.05: www.hardwareresources.com.
      c. Blum, Inc; CLIP top 170° Press-in #71T6580: www.blum.com.
      d. Substitutions: Not permitted.

2.08 FABRICATION

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises.
   1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
   2. Cap exposed plastic laminate finish edges with plastic trim.

E. Provide cutouts for fixtures and fittings. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

F. Shop glaze glass materials using the Interior Dry method as specified in Section 08 80 00.

G. Hardware: Install hardware components in fabricator's shop. Carpenter installation of cabinet hardware components in field is not permitted.

2.09 SHOP FINISHING

A. Hardware: Install hardware components in fabricator's shop. Carpenter installation of cabinet hardware compopnents in field is not permitted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

C. Use fixture attachments in concealed locations for wall mounted components.

D. Use concealed joint fasteners to align and secure adjoining cabinet units.

E. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

F. Secure cabinets to floor using appropriate angles and anchorages.

3.03 ADJUSTING

A. Test installed work for rigidity and ability to support loads.

B. Adjust moving or operating parts to function smoothly and correctly. Clean sawdust from drawer slides. Re-grease slides after removing sawdust.

C. Repair damaged and defective casework to eliminate defects functionally and visually. Where not possible to repair properly, replace casework.

3.04 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

B. Remove sawdust, leftover materials and other debris from within cabinets and drawers.

END OF SECTION

SECTION 07 01 50.19
PREPARATION FOR RE-ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of existing roofing system in preparation for new mechanical equipment penetrations and patching of roofing membrane to match existing.

B. Partial replacement of existing roofing system in preparation for replacement roofing system in designated areas as indicated on drawings.

C. Temporary roofing protection.

1.02 RELATED REQUIREMENTS

A. Section 07 52 00: Modified Bituminous Membrane Roofing.

1.03 REFERENCE STANDARDS

A. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with affected mechanical and electrical work associated with roof penetrations.

B. Preinstallation Meeting: Convene one week before starting work of this section.
   1. Attendees:

C. Schedule work to coincide with commencement of installation of new roofing system.

1.05 QUALITY ASSURANCE

A. Materials Removal Firm Qualifications: Company specializing in performing the work of this section with minimum 5 years ofdocumented experience.

1.06 FIELD CONDITIONS

A. Existing Roofing System: Modified bituminous roofing.

B. Do not remove existing roofing membrane when weather conditions threaten the integrity of building contents or intended continued occupancy.

C. Maintain continuous temporary protection prior to and during installation of new roofing system.

D. Owner will occupy building areas directly below re-roofing area.
   1. Provide Owner with at least 48 hours written notice of roofing activities that may affect their operations and to allow them to prepare for upcoming activities as necessary.
   2. Do not disrupt Owner's operations or activities.
   3. Maintain access of Owner's personnel to corridors, existing walkways, and adjacent buildings.

PART 2 PRODUCTS

2.01 COMPONENTS

A. Refer to following sections for additional information on components relating to this work:

1. Partial removal of existing roofing system in preparation for new roofing system in designated areas as indicated on drawings, refer to Section 07 52 00.

2.02 MATERIALS

A. Temporary Roofing Protection Materials:
   1. Contractor's responsibility to select appropriate materials for temporary protection of roofing areas as determined necessary for this work.

2.03 ACCESSORIES

A. Fasteners: Type and size as required and compatible with existing and new roofing system to resist local wind uplift.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing roof surface has been cleared of materials being removed from existing roofing system and ready for next phase of work as required.

3.02 PREPARATION

A. Sweep roof surface clean of loose matter.

B. Remove loose refuse and dispose of properly off-site.

3.03 MATERIAL REMOVAL

A. Remove only existing roofing materials that can be replaced with new materials the same day.

B. Remove damaged portions of roofing membrane, perimeter base flashings, flashings around roof protrusions, pitch pans and pockets.

C. Cut and lay flat any membrane blisters.

D. Remove insulationand fasteners, cant strips, blockingin areas of affected work.

E. Remove vapor retarder and underlay.

F. Repair existing concrete deck surface to provide smooth working surface for new roof system.

3.04 INSTALLATION

A. Coordinate scope of this work with requirements for installation of new roofing system, refer to Section 07 52 00 for additional requirements.

3.05 PROTECTION

A. Provide protection of existing roofing system that is not having work performed on it.

B. Provide temporary protective sheeting over uncovered deck surfaces.

C. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights.

D. Provide for surface drainage from sheeting to existing drainage facilities.

E. Do not permit traffic over unprotected or repaired deck surface.

END OF SECTION

SECTION 07 05 53
FIRE AND SMOKE ASSEMBLY IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Identification markings for fire and smoke rated partitions, and fire rated walls.

1.02 REFERENCE STANDARDS

A. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's printed product literature for each type of marking, indicating font, foreground and background colors, wording, and overall dimensions.

C. Schedule: Completely define scope of proposed marking, and indicate location of affected walls and partitions, and number of markings.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 FIELD CONDITIONS

A. Do not install painted markings when ambient temperature is lower than recommended by coating manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Partition Identification Labels:
   1. Fire Wall Signs, Inc: www.firewallsigns.com.
   2. Safety Supply Warehouse, Inc: www.safetysupplywarehouse.com.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FIRE AND SMOKE ASSEMBLY IDENTIFICATION

A. Regulatory Requirements: Comply with "Marking and Identification" requirements of "Fire-Resistance Ratings and Fire Tests" Chapter 703.7 of ICC (IBC).

B. Adhered Fire and Smoke Assembly Identification Signs: Printed vinyl sign with factory applied adhesive backing.

C. Languages: Provide sign markings in English.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

A. Locate markings as required by ICC (IBC).

B. Install adhered markings in accordance with manufacturer's instructions.

C. Install neatly, with horizontal edges level.

D. Protect from damage until Date of Substantial Completion; repair or replace damaged markings.

END OF SECTION

SECTION 07 52 00
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Modified bituminous roofing membrane, conventional application.

B. Insulation, flat and tapered.

C. Vapor retarders.

D. Base flashings.

1.02 RELATED REQUIREMENTS

A. Section 07 01 50.19 - Preparation for Re-Roofing.

B. Section 07 71 00 - Roof Specialties: Counterflashings and roof portals.

C. Section 07 72 00 - Roof Accessories: Roof-mounted equipment rails and piping pedestals.

1.03 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

B. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011.

C. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2017.

D. ASTM D312/D312M - Standard Specification for Asphalt Used in Roofing; 2015.

E. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007, with Editorial Revision (2012).

F. ASTM D6162/D6162M - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements; 2000a (Reapproved 2015).

G. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2011.

H. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011.

I. FM DS 1-28 - Wind Design; 2007.

J. NRCA (RM) - The NRCA Roofing Manual; 2018.

K. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of associated flashings and counterflashings installed by other sections.

B. Preinstallation Meeting: Convene one week before starting work of this section.
   1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's catalog data for membrane and bitumen materials, base flashing materials, insulation, and vapor retarder.
   1. Sustainable Design Submittal: Include testing documentation of solar reflectance index.

C. Manufacturer's Installation Instructions: Indicate special procedures.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.

B. Store materials in weather protected environment, clear of ground and moisture; ballast materials may be stored outdoors.

C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

D. Protect foam insulation from direct exposure to sunlight.

1.08 FIELD CONDITIONS

A. Do not apply roofing membrane when environmental conditions are outside the ranges recommended by manufacturer.

B. Do not apply roofing membrane during unsuitable weather.

C. Do not apply roofing membrane when ambient temperature is below 40 degrees F.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

F. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Maintain existing Tremco Roofing Warranty. Modified Bituminous Membrane Roofing System is currently under warranty by Tremco with Olsson Roofing Company, LLC as the installing contractor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Membrane Materials:
   1. Firestone Building Products Company: www.firestonebpco.com/#sle.
   2. GAF: www.gaf.com/#sle.
   3. Tremco, Inc.; www.tremco.com.Note: Existing roof membrane is a Tremco system.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ROOFING - CONVENTIONAL APPLICATION

A. Modified Bituminous Roofing: Two-ply membrane, with insulation.

B. Roofing Assembly Requirements:
   1. Solar Reflectance Index (SRI): 78, minimum, calculated in accordance with ASTM E1980, based on 3-year aged data.
      a. Field applied coating may not be used to achieve specified SRI.
   2. External Fire Exposure Classification: ASTM E108 Class A, UL (FRD) listed.
   3. Internal Fire Spread Classification: Factory Mutual Class 1, FM-approved.
   4. Wind Resistance Classification: Factory Mutual 1-90, in accordance with FM DS 1-28.
   5. Insulation Thermal Value (R), minimum: LTTR; provide insulation thickness to match existing roofing system.
   6. Surfacing: Mineral granules.

C. Acceptable Insulation Types - Constant Thickness Application: Any type that meets requirements and is approved by membrane manufacturer for application.
   1. Minimum 2 layers of polyisocyanurate board.
   2. Bottom layer of polyisocyanurate board covered with single layer of polyisocyanurate board.

D. Acceptable Insulation Types - Tapered Application: Any type that meets requirements and is approved by membrane manufacturer for application.
   1. Tapered polyisocyanurate board.

2.03 MEMBRANE AND SHEET MATERIALS

A. Membrane: Polymer modified asphalt, reinforced with non-woven fabric; granule surfaced; with the following characteristics:
   1. Minimum Quality: ASTM D6162/D6162M Type I; styrene-butadiene-styrene (SBS) modified, glass fiber and polyester reinforced.

2. Solar Reflectance: 0.75, minimum, initial, and 0.60, minimum, 3-year, certified by Cool Roof Rating Council.
3. Thermal Emissivity: 0.80, minimum, initial, and 0.85, minimum, 3-year, certified by Cool Roof Rating Council.
4. Color: White.

B. Vapor Retarder Felt: Asphalt-saturated organic, ASTM D226/D226M, Type I ("No.15") felt, unperforated.

C. Flexible Flashing Material: Same material as membrane.

2.04 BITUMINOUS MATERIALS

A. Bitumen: Asphalt, ASTM D312/D312M Type IV; for adhering insulation, use Type III.

B. Primer: ASTM D41/D41M, asphalt type.

C. Roof Cement: ASTM D4586/D4586M, Type II.

2.05 INSULATION

A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 1, and with the following characteristics:
1. Compressive Strength: 16 psi
2. Board Size: 48 by 96 inch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 CONCRETE DECK PREPARATION

A. Fill surface honeycomb and variations with latex filler.

B. Confirm dry deck by moisture meter with 12 percent moisture maximum.

C. Conventional Application: Apply mopped two-ply vapor retarder.

3.03 VAPOR RETARDER INSTALLATION - CONVENTIONAL APPLICATION

A. Mopped Two-ply Vapor Retarder:
1. Apply primer at a rate of 1 gal/square and allow to dry.
2. Mop surface with hot bitumen and embed two plies of vapor retarder felt; lap plies 19 inches, full mop each ply.

3. Apply bitumen at 20 pounds per square.
4. Glaze top surface of the vapor retarder with bitumen if insulation is not placed immediately.

B. Extend vapor retarder under cant strips and blocking.

3.04 INSULATION INSTALLATION - CONVENTIONAL APPLICATION

A. Ensure vapor retarder is clean and dry, continuous, and ready for application of roofing system.

B. Attachment of Insulation: Embed each layer of insulation in flood coat mopping of hot bitumen in accordance with roofing and insulation manufacturers' instructions.

C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

E. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.

F. Do not apply more insulation than can be covered with membrane in same day.

3.05 MEMBRANE APPLICATION

A. Apply modified bituminous membrane roofing system in accordance with manufacturer's recommendations and NRCA (RM) applicable requirements.

B. Apply membrane; lap and seal edges and ends permanently waterproof.

C. Apply smooth, free from air pockets, wrinkles, fish-mouths, or tears. Ensure full bond of membrane to substrate.

D. At end of day's operation, install waterproof cut-off. Remove cut-off before resuming roofing.

E. At intersections with vertical surfaces:
1. Extend membrane over cant strips and up a minimum of 8 inches onto vertical surfaces.
2. Apply flexible flashing over membrane.

F. Around roof penetrations, mop in and seal flanges and flashings with flexible flashing.

G. Coordinate installation of roof roof curbs and related flashings.

3.06 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by bitumen or other source of soiling caused by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.

C. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 71 00
ROOF SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prefabricated roof specialties, including roof portals.

1.02 RELATED REQUIREMENTS

A. Section 07 72 00 - Roof Accessories: Pipe Supports & Equipment Rails.

1.03 REFERENCE STANDARDS

A. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2001.

B. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007, with Editorial Revision (2012).

C. NRCA (RM) - The NRCA Roofing Manual; 2018.

D. NAAMM (MFM) - Metal Finishes Manual; National Association of Architectural Metal Manufacturers; 1988.

E. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.

C. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.

D. Manufacturer's Installation Instructions: Indicate special procedures, fasteners, supporting members, and perimeter conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Pre-Fabricated roof portal systems:
   1. Conn-Fab Sales, Inc.: www.connfab.com.
   2. The Pate Company: www.patecurbs.com.
   3. Portals Plus: www.portalsplus.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 COMPONENTS

A. Prefabricated Roof Portal Systems: Consisting of an insulated metal roof curb, plastic curb cover/s, and one or two rubber caps.

1. Model Number: (Based on Portals Plus): Double Pipe Portal with white cap/s and RC-2A prefabricated curb; 11 inches high.
2. Curb: Fabricate of 18 gauge, galvanized steel sheet complying with ASTM A653; straight sided, with integral base plate. Mitre and weld corners to form unitized construction. Coat welded areas with zinc rich paint.
   a. Insulation: 1.5 inch thick, 3 pound density fiberglass.
   b. Nailer: 2x2 (nom.) softwood; factory attached with concealed screws.
   c. Height: 11 inches.
3. Curb Cover: Molded ABS with laminated acrylic UV-resistant coating. Fabricate crowned to shed water, with integral counterflashing and drip edge, and pre-punched holes for field attachment to curb nailer.
   a. Portal Opening(s): Molded integral to cover, with double weatherseal bead at collar to accept manufacturer's standard molded rubber cap, forming a weatherproof seal without additional clamps or sealant.
4. Cap(s): Molded EPDM rubber sized to fit collared opening(s) in curb cover, with molded weatherseal grooves to fit weatherseal beads on opening collar(s). Provide manufacturer's standard cap(s) and adapters of the appropriate size and shape to properly seal penetration(s).
5. Clamps: Stainless steel pipe clamping rings for securing cap(s) around penetration(s).
6. Insulation: Install unfaced batt insulation inside roof curb from below after final piping placement.

2.03 ACCESSORIES

A. Roof Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.
   1. Refer to Section 07 72 00 for information on roofing related accessories.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

B. Seal joints within components when required by component manufacturer.

C. Anchor components securely.

D. Conform to drawing details included in NAAMM, NRCA and SMACNA manuals.

E. Coordinate installation of components of this section with installation of stacks, vents, piping, conduits and other items penetrating roof membrane.

F. Coordinate installation of components of this section with installation of roofing membrane and base flashings.

G. Coordinate installation of sealants and roofing cement with work of this section to ensure water tightness.

END OF SECTION

SECTION 07 72 00
ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Equipment rails.

B. Non-penetrating pedestals.

1.02 RELATED REQUIREMENTS

A. Section 07 71 00 - Roof Specialties: Other manufactured roof items.

1.03 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.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Maintenance requirements.

C. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.
   1. Non-penetrating Rooftop Supports: Submit design calculations for loadings and spacings.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.01 ROOF CURBS & RAILS

A. Manufacturers:
   1. The Pate Company; ES-1: www.patecurbs.com/#sle.
   2. Roof Products & Systems (RPS); ER-4B: www.rpscurbs.com/#sle.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

B. Equipment Rail Curbs: Straight curbs on each side of equipment, with top of curbs horizontal and level with each other for equipment mounting.
   1. Provide preservative treated wood nailers along top of rails.

2. Height Above Finished Roof Surface: 8 inches, minimum.

2.02 NON-PENETRATING ROOFTOP SUPPORTS/ASSEMBLIES

A. Non-Penetrating Rooftop Support/Assemblies: Manufacturer-engineered and factory-fabricated, with pedestal bases that rest on top of roofing membrane, and not requiring any attachment to roof structure and not penetrating roofing assembly.
   1. Design Loadings and Configurations: As required by applicable codes.
   2. Support Spacing and Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
   3. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
   4. Hardware, Bolts, Nuts, and Washers: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.
   5. Manufacturers:
      a. PHP Systems/Design; SS8-C: www.phpsd.com/#sle.
      b. Portals Plus; Pedestal Plus: www.portalsplus.com/#sle.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect/Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.04 CLEANING

A. Clean installed work to like-new condition.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 07 84 00
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of joints and penetrations in fire resistance rated and smoke resistant assemblies, whether indicated on drawings or not, and other openings indicated.

C. Smoke-stopping of all penetrations of and joints in smoke partitions, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 - Execution and Closeout Requirements: Cutting and patching.

B. Section 07 05 53 - Fire and Smoke Assembly Identification.

C. Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.

B. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2013a.

C. ITS (DIR) - Directory of Listed Products; current edition.

D. FM 4991 - Approval Standard for Firestop Contractors; 2013.

E. FM (AG) - FM Approval Guide; current edition.

F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

G. UL 1479 - Standard for Fire Tests of Penetration Firestops; Current Edition, Including All Revisions.

H. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 DEFINITIONS

A. Assembly: Particular arrangement of materials specific to given type of construction described or detailed in referenced documents.

B. Barriers: Time rated fire walls, smoke barrier walls, time rated ceiling/floor assemblies and structural floors.

C. Firestopping: Methods and materials applied in penetrations and unprotected openings to limit spread of heat, fire gasses and smoke.

D. Penetration: Opening or foreign material passing through or into barrier or structural floor such that full thickness of rated materials is not obtained.

E. Joint: Interruption to a fire-rated assembly occurring at interface between 1) adjacent sections of wall, 2) intersecting walls, 3) top of wall and ceiling, structural floor or roof deck, 4) wall and edge of structural floor, 5) adjacent sections of structural floor.

F. System: Specific products and applications, classified and numbered by Underwriters Laboratories, Inc. to close specific barrier penetrations and joints.

G. Sleeve: Metal fabrication or pipe section extending through thickness of barrier and used to permanently guard penetration. Sleeves are described as part of penetrating system in other sections and may or may not be required.

1.05 SYSTEM DESCRIPTION

A. Design Requirements:
   1. Fire-rated construction: Maintain barrier and structural floor fire resistance ratings including resistance to cold smoke at all penetrations, connections with other surfaces or types of construction, at separations required to permit building movement and sound or vibration absorption, and at other construction gaps.
   2. Smoke barrier construction: Maintain barrier and structural floor resistance to cold smoke at all penetrations, connections with other surfaces and types of construction and at all separations required to permit building movement and sound or vibration absorption, and at other construction gaps.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
   1. Provide manufacturer's qualified engineering judgements for non-standard applications.

C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

D. Sustainable Design Submittal: Submit VOC content documentation for all non-preformed materials.

E. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.07 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
   2. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
   2. Verification of minimum three years documented experience installing work of this type.
   3. Verification of at least five satisfactorily completed projects of comparable size and type.
   4. Licensed by local authorities having jurisdiction (AHJ).

1.08 MOCK-UP

A. Install one firestopping assembly representative of each fire rating design required on project.
   1. Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination.
   2. Where firestopping is intended to fill a linear opening, install minimum of 1 linear ft.

B. Obtain approval of authorities having jurisdiction (AHJ) before proceeding.

C. If accepted, mock-up will represent minimum standard for the Work.

D. If accepted, mock-up may remain as part of the Work. Remove and replace mock-ups not accepted.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original, unopened packaging with legible manufacturer's identification.

B. Coordinate delivery with scheduled installation date to minimize storage time at site.

C. Store materials in a clean, dry, ventilated location. Protect materials from freezing if required by manufacturer.

1.10 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Firestopping Manufacturers:
   1. 3M Fire Protection Products: www.3m.com/firestop.
   2. A/D Fire Protection Systems Inc: www.adfire.com.
   3. Hilti, Inc: www.us.hilti.com/#sle.
   4. Nelson FireStop Products: www.nelsonfirestop.com.
   5. Specified Technologies Inc: www.stifirestop.com/#sle.
   6. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.
   7. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Firestopping Materials: Any materials meeting requirements.

B. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.

C. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

D. Fire Ratings: Refer to drawings for required systems and ratings.

2.03 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.
   1. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

B. Acceptable Manufacturers: As listed in UL (FRD) for specific UL Design Number.

C. Fill, Void or Cavity Materials: Conform to UL (FRD) - XHHW.

D. Firestop Devices: Conform to UL (FRD) - XHJI.

E. Forming Materials: Conform to UL (FRD) - XHKU.

F. Mechanical Joint Assemblies: Conform to UL (FRD) - XHLP.

G. Packing Material: As required by specific UL Design Number for joint system or through-penetration firestop system.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.
   1. Verify barrier joints and penetrations are properly sized and in suitable condition for application of materials.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

3.03 INSTALLATION

A. Install materials in manner described in UL (FRD) or fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authorities having jurisdiction.

C. Install peel and stick labeling to identify fire-resistant rated assemblies on each side of fire barrier walls at 48 inches on center that are indicated on the drawings as a fire barrier. Labeling shall be installed in above acoustical ceiling cavities at public accessed areas, on wall surfaces in rooms without finished ceilings at 96" AFF or in areas as directed by the Authority Having Jurisdiction.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

B. Patch or replace firestopping damaged by work of other sections.

END OF SECTION

SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping: Firestopping sealants.

B. Section 08 71 00 - Door Hardware: Setting exterior door thresholds in sealant.

C. Section 08 80 00 - Glazing: Glazing sealants and accessories.

D. Section 09 21 16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

E. Section 23 31 00 - HVAC Ducts and Casings: Duct sealants.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2014.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).

F. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2013.

G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.
   5. Substrates for which use of primer is required.
   6. Substrates for which laboratory adhesion and/or compatibility testing is required.

7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
8. Sample product warranty.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

E. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect/Engineer and submit at least two physical samples for verification of color of each required sealant.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

C. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
1. Pecora Corporation: www.pecora.com/?sle.
2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
a. Wall expansion and control joints.
b. Joints between door, window, and other frames and adjacent construction.
c. Joints between different exposed materials.
d. Openings below ledge angles in masonry.

e. Lap joints in sheet metal flashing.
f. Other joints indicated below.

2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. Joints between countertop back and side splashes and adjacent wall construction.
   c. Joints between window sills and adjacent window and wall construction.
   d. Joints between plumbing fixtures and adjacent construction.
   e. Other joints indicated below.
3. Do not seal the following types of joints.
   a. Intentional weep holes in masonry.
   b. Weep holes in curtain wall, storefront and window systems.
   c. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
   d. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   e. Joints where installation of sealant is specified in another section.
   f. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag non-staining silicone sealant, Type S-1, unless otherwise indicated.

C. Interior Joints: Use non-sag polyurethane sealant, Type S-3, unless otherwise indicated.
1. Wall and Ceiling Joints in Non-Wet Areas including the perimeter of interior hollow metal door frames: Acrylic emulsion latex sealant; Type S-4.
2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; clear; Type S-2.

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.04 NONSAG JOINT SEALANTS

A. Type S-1 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Color: Match adjacent finished surfaces.
5. Cure Type: Single-component, neutral moisture curing.
6. Service Temperature Range: Minus 20 to 180 degrees F.
7. Manufacturers:
   a. Pecora Corporation: www.pecora.com.
   b. Substitutions: See Section 01 60 00 - Product Requirements.

B. Type S-2 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: Clear.

2. Manufacturers:
    a. Pecora Corporation: www.pecora.com.
    b. Substitutions: See Section 01 60 00 - Product Requirements.

C. Type S-3 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
    1. Movement Capability: Plus and minus 25 percent, minimum.
    2. Color: Match adjacent finished surfaces.
    3. Manufacturers:
        a. Pecora Corporation: www.pecora.com.
        b. Substitutions: See Section 01 60 00 - Product Requirements.

D. Type S-4 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
    1. Color: Standard colors matching finished surfaces, Type OP (opaque).
    2. Manufacturers:
        a. Pecora Corporation: www.pecora.com.
        b. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel frames for wood doors.

B. Accessories, including glazing and matching panels.

1.02 RELATED REQUIREMENTS

A. Section 08 71 00 - Door Hardware.

B. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.

C. Section 09 90 00 - Painting & Coating: Field painting.

1.03 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).

D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.

E. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.

F. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

G. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association; 2007.

H. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association; 2008.

I. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

J. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; 1998.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.05 QUALITY ASSURANCE

A. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with NAAMM HMMA 840.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Doors and Frames:
   1. Ceco or Curries: www.assaabloydss.com.
   2. Steelcraft: www.steelcraft.com.
   3. Pioneer Industries: www.pioneerindustries.com.
   4. Republic Doors and Frames: www.republicdoor.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS AND FRAMES

A. Requirements for All Doors and Frames:
   1. Accessibility: Comply with ANSI/ICC A117.1.
   2. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
   3. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL FRAMES

A. General:
   1. Comply with the requirements of grade specified for corresponding door, except:
      a. Provide thickness (gage) of material as scheduled on drawings.
   2. Finish: Same as for door.
   3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
   4. Frames Wider than 48 Inches: Reinforce with steel channel fitted tightly into frame head, flush with top.
   5. Frames Installed Back-to-Back: Reinforce with steel channels anchored to floor and overhead structure.

B. Interior Door Frames, Non-Fire-Rated: Face welded, seamless, with joints filled and 16 Gauge.

C. Interior Door Frames, Fire-Rated: Face welded, seamless, with joints filled and 16 Gauge.
   1. Fire Rating: Same as door, labeled.

2.04 ACCESSORY MATERIALS

A. Glazing: As specified in Section 08 80 00, field installed.

B. Removable Stops: Formed sheet steel, mitered or butted corners; prepared for countersink style tamper proof screws.

C. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

D. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.05 FINISH MATERIALS

A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.

B. In addition, install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Coordinate installation of hardware.

F. Coordinate installation of glazing.

G. Coordinate installation of electrical connections to electrical hardware items.

H. Touch up damaged factory finishes.

3.03 TOLERANCES

A. Clearances Between Door and Frame: As specified in ANSI A250.8.

B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; fire rated and non-rated.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

B. Section 08 71 00 - Door Hardware.

1.03 REFERENCE STANDARDS

A. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.

B. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association; 2012.

C. UBC Std 7-2, Part II - Test Standard for Smoke- and Draft-control Assemblies; International Conference of Building Officials; 1997.

D. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

E. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

F. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

G. WDMA I.S.1-A - Architectural Wood Flush Doors; Window and Door Manufacturers Association; 2011.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

D. Specimen warranty.

E. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 5 years of documented experience.

B. Installed Fire Rated Door Assembly: Conform to NFPA 80 for fire rated class as indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Graham Wood Doors: www.grahamdoors.com.
   2. Eggers Industries: www.eggersindustries.com <http://www.eggersindustries.com>.
   3. Lambton Doors: www.lambtondoors.com.
   4. Marshfield DoorSystems, Inc: www.marshfielddoors.com.
   5. Algoma Hardwoods, Inc.: www.algomahardwoods.com.
   6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS

A. All Doors: See drawings for locations and additional requirements.
   1. Quality Level: Premium Grade, Heavy Duty performance, in accordance with WDMA I.S.1-A.
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated and bonded to core.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at all locations.
   2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with NFPA 252, UL 10B, or UBC Standard 7-2-94 ("neutral pressure"); UL labeled without any visible seals when door is closed.
   3. Smoke and Draft Control Doors (Indicated as "S" on Drawings): In addition to required fire rating, provide door assemblies tested in accordance with UL 1784 with maximum air leakage of 3.0 cfm per sq ft of door opening at 0.10 inch w.g. pressure at both ambient and elevated temperatures; with "S" label; if necessary, provide additional gasketing or edge sealing.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.

B. Fire Rated Doors: Mineral core, Type FD, plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

2.04 DOOR FACINGS

A. Wood Veneer Facing for Transparent Finish: Red oak, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless otherwise indicated.
   1. Vertical Edges: Same species as face veneer.

B. Facing Adhesive: Type II - water resistant.

2.05 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:

C. Provide solid blocks at lock edge for hardware reinforcement.
   1. Provide solid blocking for other through-bolted hardware.

D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
   1. Exception: Doors to be field finished.

F. Provide edge clearances in accordance with the quality standard specified.

2.06 FACTORY FINISHING - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
   1. Transparent:
      a. System TR-6, Catalyzed polyurethane.
      b. Stain: As selected by Architect/Engineer. Match existing wood door stain color.
      c. Sheen: Satin.

B. Factory finish doors in accordance with approved sample.

C. Seal door top edge with color sealer to match door facing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.
   1. Install fire-rated doors in accordance with NFPA 80 requirements.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Trim maximum of 3/4 inch off bottom edges.

D. Trim fire-rated doors in strict compliance with fire rating limitations.

E. Use machine tools to cut or drill for hardware.

F. Coordinate installation of doors with installation of frames and hardware.

G. Coordinate installation of glazing.

3.03 TOLERANCES

A. Conform to specified quality standard for fit and clearance tolerances.

B. Conform to specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.05 SCHEDULE - See Drawings

END OF SECTION

SECTION 08 31 00
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall mounted ventilating access units.

1.02 RELATED REQUIREMENTS

A. Section 09 90 00 - Painting and Coating: Field paint finish.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2018.

C. 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.

D. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

C. Manufacturer's Installation Instructions: Indicate installation requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years experience.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

A. Wall-Mounted Units with Return Air Grille:
   1. Location: As indicated on drawings.
   2. Panel Material: Aluminum extrusions with gypsum board inlay.
   3. Size: 30 inch by 36 inch high.
   4. Door: 14 Gauge steel with radius corners.
   5. Frame & Trim: 18 Gauge steel, 1-1/2" wide flange.

6. Finish: Primed white baked enamel, paintable surface for field painting to match wall color.
7. Latches: Flush, stainless steel screwdriver cam latch.
8. Hinges: Semi-concealed offset hinge up to 180 degree swing.
9. Louvers: Full louvers.

B. Manufacturers:
1. Williams Brothers Corporation of America; Model: GP LV 103 30x36H; www.wbdoors.com.
2. Substitutions: Not Permitted.

C. Ceiling-Mounted Units with Return Air Grille:
1. Size - Lay-In Grid Ceilings: To match module of ceiling grid.
2. Size - Other Ceilings: 12 inch by 12 inch.

2.02 WALL AND CEILING MOUNTED ACCESS UNITS WITH RETURN AIR GRILLES

A. Gypsum Board Inlay Access Panels: Provide rectangular and square access panel with recessed and gasketed aluminum perimeter frame that acts as finishing edge and having concealed mechanical touch-latch with safety cable and free-pivoting hinge.
1. Rectangular Panel Frame Size: 24 by 36 inch set within 1/2 inch thick gypsum board.
2. Square Panel Frame Size: 24 by 24 inch set within 1/2 inch thick gypsum board.
3. Panel Frame: 1 inch margin with concealed countersunk screw mounting.

B. Air Return Grille: Linear bar grille fitted with flush and concealed perimeter frame.
1. Grille: Fixed grilles with 1/4 inch thick by 5/8 inch deep bars at 1/2 inch on center providing 48 percent free space opening.
2. Grille Size: 12 by 12 inch set within 1/2 inch thick gypsum board.
3. Fabrication: Aluminum with factory powder coated finish.
4. Grille Frame: 1 inch margin with concealed countersunk screw mounting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

B. Begin installation only after substrates have been properly prepared, and if the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to proceeding with this work.

B. Prepare surfaces using methods recommended by manufacturer for applicable substrates in accordance with project conditions.

3.03 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood doors.

B. Weatherstripping, seals and door gaskets.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

B. Section 08 14 16 - Flush Wood Doors.

1.03 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

C. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; 2011.

D. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.

E. BHMA A156.6 - American National Standard for Architectural Door Trim; 2010.

F. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; 2010.

G. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; 2012.

H. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.

I. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012.

J. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.

K. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames; 2006.

L. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; 2004.

M. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; 1993; also in WDHS-1/WDHS-5 Series, 1996.

N. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

O. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

P. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware will be installed upon.

B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

C. Convey Owner's keying requirements to manufacturers.

D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
   1. Review with supplier, installers and related trades: Materials, rough-in and installation procedures, sequence of operation for each opening and coordination of related Work.

E. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project. Include catalog cuts, installation details, material descriptions, dimensions of individual components and profiles, and finishes.

C. Submittal Sequence:
   1. Door hardware supplier to visit site for a keying meeting with Owner prior to submitting schedules for review. Coordinate keying with shop drawings submittal.
   2. Submit hardware schedule at earliest possible date, so as not to delay fabrication of other work. Note long lead items that may be of particular concern.

D. Final Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements. Coordinate 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 SEQF.
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
   3. Content: Schedules without the following will not be acceptable:
      a. Location, type, style, function, size, fire rating, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information
      d. Cross reference of specification set number to schedule item number.
      e. Cross reference manufacturer’s product numbers of each type of Hardware specified to the specified hardware included in schedule.
      f. door index.
      g. Explanation of abbreviations, symbols, and codes contained in schedule.
      h. Mounting locations for door hardware.
      i. Door and frame sizes and materials.

4. Include in Hardware Schedule a description of each electrified door hardware function, including product's location sequence of operation, and interface with other building control systems.
    a. Sequence of Operation: include description of component functions that occur in the following situations: outside operation, inside operation, LEDindicators, power on/power off and any other pertinent information.

E. Keying Schedule: Submit for approval of Owner.

F. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

G. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
    1. Submit manufacturer's parts lists and templates.
    2. Bitting List: List of combinations as furnished, indexed by key set number and door number.

H. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

I. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

J. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with 10 years of documented experience.

C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC), certified by DHI, to prepare hardware schedules, perform Post Installation Inspection, and otherwise assist in the work of this section.

D. Hardware Installer: Factory-authorized personnel certified for installation of the Products of this Section.

1.07 KEYING MEETING

A. Arrange meeting with door hardware supplier and Owner. Submit keying schedule for Architect's review after this meeting.

B. Review with supplier, installers and related trades: Materials, rough-in and installation procedures, sequence of operation for each opening and coordination of related Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.09 WARRANTY

A. Provide manufacturer's three year warranty for locksets & 5 year warranty for door closers.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

A. Provide hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.

B. Provide items of a single type of the same model by the same manufacturer.

C. Provide products that comply with the following:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Fire-Rated Doors: NFPA 80.
   4. Hardware on Fire-Rated Doors, Except Hinges: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.
   5. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
   6. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
   7. Hardware for Smoke and Draft Control Doors (Indicated as "S" on Drawings): Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.
   8. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.

D. Function: Lock and latch function numbers and descriptions of manufactures series as as shown on the drawings.

E. Finishes: Provide door hardware of the same finish unless otherwise indicated.
   1. Finish: Satin chrome plated over nickel on brass or bronze, 626 (approx US26D).
   2. Finish Definitions: BHMA A156.18.
   3. Exceptions:
      a. Where base metal is specified to be different, provide finish that is an appearance equivalent according to BHMA A156.18.
      b. Hinges for Fire-Rated Doors: Steel base metal with plated finish.

F. Fasteners:
   1. Mineral Core Wood Doors: Sex bolts.

2.02 LOCKS AND LATCHES - GENERAL

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. If no hardware set is indicated for a swinging door provide an office lockset.
   2. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   3. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Electrically Operated Lock Strikes: Fail secure unless otherwise indicated.

C. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.03 CYLINDERS, KEYS AND KEYING

A. Lock Cylinders: Tumbler type core.
   1. Comply with ANSI/BHMA A156.5 and ANSI/BHMA A156.13.
   2. Manufacturer:
      a. Schlage Lock Company: www.schlage.com.
      b. Substitutions: Not permitted.
   3. Standard Security Cylinders: six-pin standard core.
      a. Schlage 30-000 Series.
      b. Provide cylinders to fill the requirements of the building and still allow the convenience of a single top level key to operate all interior locks.
   4. Provide cams and/or tailpieces as required for locking devices required.
   5. Finish: For each opening, match finish of lockset, exit device or other hardware component into which cylinder is inserted.

B. Keying System: Grand master keyed.
   1. Key to Owner's existing building keying system.
   2. Properly tag cylinders and keys to indicate their intended location and to enable Owner, with minimum effort, to incorporate into its key control system.
   3. When providing keying information, comply with DHI Handbook "Keying systems and nomenclature".

2.04 BUTT HINGES

A. General: Provide hinges on every swinging door.
   1. Provide concealed five-knuckle, anti-friction bearing, button tip, full mortise butt hinges with square corners and non-rising loose pins unless otherwise indicated.
   2. Provide anti-friction bearing hinges at all doors having closers.
   3. Provide hinges in the quantities indicated.
   4. Provide non-removable pins or security studs on exterior outswinging doors.
   5. Provide non-removable pins security studs on outswinging doors at "secured" areas.
   6. Where electrified hardware is mounted in door leaf, provide power transfer hinges. Provide four- or eight-wire type as appropriate for complete installation of:
      a. Concealed door monitoring contacts and other security access components.
      b. Power transfer to/from other scheduled door hardware.

B. Manufacturers - Hinges:
   1. Assa Abloy Brands; McKinney: www.assaabloydss.com/#sle.
   2. Bommer Industries, Inc: www.bommer.com/#sle.
   3. Hager Companies: www.hagerco.com/#sle.
   4. Ives, an Allegion brand: www.allegion.com/us.
   5. Stanley Black & Decker: www.stanleyblackanddecker.com/#sle.

C. Imported or So-Called "Economical" Hinges: Not acceptable.

D. Quantity:

1. Doors From 60 inches High up to 90 inches High: Three hinges per leaf.

E. Material:
   1. Interior Door Leafs Up To 36 Inches Wide: Wrought or stainless steel, standard weight (0.134 inch).
   2. Vestibule Doors, Exterior Doors, and Door Leafs Over 36 Inches Wide: Solid bronze or stainless steel, heavy weight (0.180 or 0.190 inch).

F. Size: Sufficient to clear trim and allow doors, otherwise free of obstruction, to open 180 degrees.
   1. 4½ x 4 ½ inch: For door leafs up to 36 inches wide and 1¾ inches thick.
   2. 5 x 5 inch: For door leafs over 36 inches wide and/or over 1¾ inches thick.

G. Finish: For each opening, match finish of other hardware components.

2.05 CYLINDRICAL LOCKS AND LATCHES

A. Comply with ANSI/BHMA A156.2, Series 4000, Grade 1 requirements, except as noted below.

B. Locking Functions: As defined in BHMA A156.2, and as follows:
   1. Passage: F75, no locking, always free entry and exit.
   2. Office: F81, key not required to lock, remains locked upon exit.
   3. Classroom: F84, key required to lock.
   4. Store Room: F86, key required to lock, may not be left unlocked.

C. Manufacturers:
   1. Schlage, an Allegion brand: www.allegion.com/us.
   2. Substitutions: Not permitted.

D. Single Source Responsibility: Provide locksets, latchsets, electrified locksets, and trim of one manufacturer as listed above for continuity of design and consideration of warranty.

E. Heavy Duty Cylindrical Locksets and Latchsets:
   1. Mechanical Locks:
      a. Model:
         1) Schlage D Series.
   2. Function: As scheduled in the individual hardware sets.
   3. Construction: Comply with ANSI/ICC A117.1 accessibility requirements.
      a. Lock Body: Corrosion resistant wrought steel.
         1) Provide non-ferrous lock bodies and internal parts in corrosive environment areas and wet areas.
      b. Handing: Easily field reversible without disassembly of lock body case.

F. Trim: Comply with ANSI/ICC A117.1 accessibility requirements, and with ANSI/BHMA A156.6 requirements for a minimum of 1,000 inch pounds of pressure without allowing access.
   1. Construction: Cast zinc with wrought roses of heavy cold-forged material; welded thru-posts bolted through the door and lock body.
   2. Lever and Rose Style:
      a. Schlage - Rhodes.

G. Strikes: Curved lip with proper lip length to protect trim of the frame; match function of lock; straight strikes are acceptable for pairs of doors and deadbolt locks.

H. Finish Hardware: BHMA 626 - Satin Chromium Plated.

2.06 CLOSERS

A. Comply with ANSI/BHMA A156.4, Grade 1 requirements; comply with ICC/ANSI A117.1 accessibility requirements for opening force and delayed action closing.

B. General:
   1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
   2. Provide a door closer on every fire- and smoke-rated door. Spring hinges are not an acceptable self-closing device unless specifically so indicated.
   3. At corridors, locate door-mounted closer on room side of door.
   4. Provide appropriate arm assemblies, installation accessories, and special templating for each closer so that closer body and arm are mounted on non-public side of door opening and on the interior side of exterior openings, except where required otherwise in the hardware sets.
      a. Where closers are scheduled for openings with acoustical doors and frames, provide closer type, arm assemblies, installation accessories and special templating compatible with cam-lift hinge operation and to maintain STC ratings of doors and frames.
   5. Provide inspection after installation by a factory representative to ensure proper adjustment and operation. File report with the architect after said visit has been made.

C. Manufacturers:
   1. DORMA USA, Inc.: www.dorma.com.
   2. LCN, an Allegion brand: www.allegion.com/us.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

D. Single Source Responsibility: All door closers to be of one manufacturer as listed above to provide for proper installation and servicing after installation.

E. Models:
   1. LCN 4040 / 4040SE.

F. Optional Functions: Provide as indicated in hardware sets.
   1. Hold Open: Heavy-duty arm and built-in mechanical holder assembly designed to hold open against normal wind and traffic conditions.
   2. Stop: Heavy-duty arm and built-in spring-loaded stop in soffit shoe.

G. Materials:
   1. Cylinders: High strength cast iron, with one-piece forged steel piston.
   2. Hydraulic Fluid: Temperature stable fluid capable of withstanding temperature ranges of 120 degrees F. to -30F without requiring seasonal adjustment of closer speed to properly close the door.
   3. Arms: Forged steel with 1-9/16" x 1/2" steel stud shoulder bolts.
   4. Parallel Arms: Forged steel with bronze bushings.
   5. Covers: Metal, with installation and adjusting information on inside of cover.

H. Sizing: Double arm closers shall have non-sized cylinders adjustable over a range of at least 5 closing power sizes. Size closers in accordance with manufacturer's recommendations, depending

upon size of door, exposure to weather, compliance with ADA requirements for operating force and anticipated frequency of use.

I. Operation: Fully hydraulic, rack and pinion action with adjustable back-check to provide a cushioning effect toward the end of the closing cycle for double-arm closers; low friction track and roller combination for single arm closers. Provide back-check positioning valve and separate, non-critical valves for adjusting sweep and latch speeds.

J. Finish: Powder coated aluminum matching finish of other hardware components for each opening.

2.07 STOPS AND HOLDERS

A. Comply with BHMA A156.8 requirements.

B. General:
   1. Provide a stop for every swinging door.
   2. Provide wall stops, unless otherwise indicated.
   3. Locate stops in such a position that they permit maximum door swing, but do not present a hazard or obstruction.
   4. Stop is not required if stop function is specified for door closer.

C. Manufacturers - Wall and Floor Stops/Holders:
   1. Hager Companies: www.hagerco.com/#sle.
   2. Ives, an Allegion brand: www.allegion.com/us.
   3. Trimco, originally called Triangle Brass Manufacturing Co., Inc: www.trimcohardware.com/#sle.

D. Models:
   1. Wall and Floor Stops/Holders:
      a. Hager #232W, 252F.
      b. Ives #WS401/402, FS441.
      c. Trimco #1270.

E. Finish: For each opening, same as other hardware components, except use 32D and 32 (stainless steel) in lieu of 26D and 26 (plated chrome finishes), respectively, where available.

2.08 GASKETING

A. Gaskets: Comply with ANSI/BHMA A156.22 requirements.
   1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.

B. Manufacturers:
   1. Hager Companies: www.hagerco.com/#sle.
   2. National Guard Products, Inc: www.ngpinc.com/#sle.
   3. Pemko Manufacturing Co: www.pemko.com/#sle.
   4. Reese Enterprises, Inc.: www.reeseusa.com.
   5. Zero International, Inc: www.zerointernational.com/#sle.

2.09 PROTECTION PLATES AND ARCHITECTURAL TRIM

A. Comply with ANSI/BHMA A156.6 requirements.

B. Protection Plates:
   1. Kickplate: Provide on push side of every door with closer, except aluminum storefront and glass entry doors.
   2. Mop Plates: Provide on door sides facing areas with hard surface floor finishes, unless kickplate or armor plate are specified.
   3. Width:
      a. Pull side: 1 inch less than door width (LDW).
      b. Push (Stop) Side: 2 inches less than door width (LDW).
   4. Height:
      a. Kickplates: 10 inches.
      b. Mop Plates: 6 inches.
      c. Doors with louvers or narrow bottom rails: 1 inch less than dimension from the bottom of the door to the bottom of the louver or lite, or to the top of the bottom rail.

C. Manufacturers:
   1. Assa Abloy Brands; McKinney: www.assaabloydss.com/#sle.
   2. C. R. Laurence Co., Inc: www.crl-arch.com.
   3. Hager Companies: www.hagerco.com/#sle.
   4. Hiawatha, Inc, division of Activar Construction Products Group, Inc: www.activarcpg.com/hiawatha.
   5. Ives, an Allegion brand: www.allegion.com/us.
   6. Rockwood Manufacturing Company: www.rockwood.com.
   7. Trimco, originally called Triangle Brass Manufacturing Co., Inc: www.trimcohardware.com/#sle.
   8. Substitutions: See Section 01 60 00 - Product Requirements.

D. Finish: For each opening, same as other hardware components, except use 32D and 32 (stainless steel) in lieu of 26D and 26 (plated chrome finishes), respectively, where available.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Do not install surface mounted items until finishes applied to substrate are complete.

D. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.

E. Mounting heights for hardware from finished floor to center line of hardware item.
   1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
   2. For Wood Doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3.03 FIELD QUALITY CONTROL

A. Post Installation Inspection: Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.
   1. Submit report to Architect/Engineer after inspection has been made.

3.04 ADJUSTING

A. Adjust hardware for smooth operation.

B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

A. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE

A. Refer to Door Hardware Schedule on the drawings.

END OF SECTION

SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glazing units.

B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed borrowed lites.

B. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015.

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).

D. ASTM C1036 - Standard Specification for Flat Glass; 2011.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

F. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2014.

G. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

H. ASTM C1349 - Standard Specification for Architectural Flat Glass Clad Polycarbonate; 2017.

I. GANA (GM) - GANA Glazing Manual; 2009.

J. GANA (SM) - GANA Sealant Manual; 2008.

K. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data on Plastic Sheet Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Samples: Submit two samples 12 by 12 inch in size of glass and plastic units.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM) and GANA (SM) for glazing installation methods. Maintain one copy on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.
   1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
      a. Safety Glazing Certification Council (SGCC).

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years experience.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glass Fabricators:
   1. GGI - General Glass International: www.generalglass.com/#sle.
   2. JE Berkowitz, LP: www.jeberkowitz.com/#sle.
   3. Standard Bent Glass Corp: www.standardbent.com/#sle.
   4. Trulite Glass & Aluminum Solutions, LLC: www.trulite.com/#sle.
   5. Viracon, Inc: www.viracon.com/#sle.
   6. Substitutions: Refer to Section 01 60 00 - Product Requirements.

B. Laminated Glass Manufacturers:
   1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
   2. Goldray Industries, Inc: www.goldrayglass.com/#sle.
   3. Viracon, Architectural Glass segment of Apogee Enterprises, Inc: www.viracon.com/#sle.
   4. Substitutions: Refer to Section 01 60 00 - Product Requirements.

2.02 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
   2. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch thick, minimum.

2.03 GLAZING UNITS

A. Type G-2 - Monolithic Interior Vision Glazing:
   1. Applications: Interior glazing unless otherwise indicated.
   2. Glass Type: Fully tempered float glass.
   3. Tint: Clear.
   4. Thickness: 1/4 inch, nominal.

B. Type G-6 - Security Glazing: Laminated glass, 2-Ply.
   1. Applications: Locations as indicated on drawings.
   2. Tint: Clear.
   3. Thickness: 1/2 inch.
   4. Outer Lite: Annealed glass.
   5. Interlayer: Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
   6. Inside Lite: Annealed glass.

C. Type G-9 - Glass-Clad Polycarbonate Security Glazing: Laminated glass and polycarbonate, multi-ply; ASTM C1349.
   1. Applications: Locations as indicated on drawings.
   2. Tint: Clear.
   3. Thickness: As required to meet performance criteria.
   4. Outer Lite: Tempered glass.
   5. Interlayer: Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
   6. Middle Lite: Polycarbonate.
   7. Interlayer , Inboard Side : Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
   8. Inside Lite: Tempered glass.
   9. Performance Criteria:
      a. Bullet Resistance: Pass UL 752 tests in compliance with ballistic criteria level and weapon description indicated; Level 3 - .44 magnum lead semi-wadcutter gas checked.

2.04 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.

C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

3.04 INSTALLATION - DRY GLAZING METHOD (TAPE AND TAPE)

A. Application - Interior Glazed: Set glazing infills from the interior of the building.

B. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.

C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

D. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.

E. Place glazing tape on free perimeter of glazing in same manner described above.

F. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

G. Carefully trim protruding tape with knife.

3.05 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove non-permanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.06 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 09 05 61
COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
   1. Resilient tile.
   2. Broadloom carpet.
   3. Carpet tile.

B. Removal of existing floor coverings.

C. Preparation of new and existing concrete floor slabs for installation of floor coverings.

D. Testing of concrete floor slabs for moisture and alkalinity (pH). Testing shall be performed by General Contractor as Base Bid work.

E. Contractor shall perform all specified testing & remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

F. Patching compound.

G. Remedial floor coatings.

1.02 REFERENCE STANDARDS

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2013.

B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2014).

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019.

D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a.

E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2011.

F. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.04 SUBMITTALS

A. Visual Observation Report: For existing floor coverings to be removed.

B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
   1. Moisture and alkalinity (pH) limits and test methods.
   2. Manufacturer's required bond/compatibility test procedure.

C. Testing Agency's Report:
   1. Description of areas tested; include floor plans and photographs if helpful.
   2. Summary of conditions encountered.
   3. Moisture and alkalinity (pH) test reports.
   4. Copies of specified test methods.
   5. Recommendations for remediation of unsatisfactory surfaces.
   6. Submit report to Architect/Engineer.
   7. Submit report not more than two business days after conclusion of testing.

D. Adhesive Bond and Compatibility Test Report.

E. Copy of RFCI (RWP).

1.05 QUALITY ASSURANCE

A. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.

B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
   1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.

C. Contractor's Responsibility Relating to Independent Agency Testing:
   1. Provide access for and cooperate with testing agency.
   2. Confirm date of start of testing at least 10 days prior to actual start.
   3. Allow at least 4 business days on site for testing agency activities.
   4. Achieve and maintain specified ambient conditions.
   5. Notify Architect/Engineer when specified ambient conditions have been achieved and when testing will start.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.07 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
   1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
   2. Latex or polyvinyl acetate additions are permitted; gypsum content is prohibited.
   3. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.

B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.

C. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
   1. Products:
      a. ARDEX Engineered Cements; ARDEX MC RAPID: www.ardexamericas.com/#sle.
      b. Custom Building Products; TechMVC Moisture Vapor and Alkalinity Barrier: www.custombuildingproducts.com/#sle.
      c. Floor Seal Technology, Inc; MES 100 with Floor Seal FloorCem SLU: www.floorseal.com/#sle.
      d. Koster American Corporation; Koster VAP I 2000 with Koster SL Premium overlay: www.kosterusa.com/#sle.
      e. LATICRETE International, Inc; LATICRETE NXT Vapor Reduction Coating with LATICRETE NXT Level Plus: www.laticrete.com/#sle.
      f. LATICRETE International, Inc; LATICRETE SUPERCAP Moisture Vapor Control with LATICRETE SUPERCAP Underlayment: www.laticrete.com/#sle.
      g. Proflex Products, Inc; Moisture Barrier 25 with DPU - Deep Pour Underlayment: www.proflex.us/#sle.
      h. Sika Corporation; Sikafloor Moisture Tolerance Epoxy Primer and Sikafloor Self-Leveling Moisture Tolerant Resurfacer: www.sikafloorusa.com/#sle.
      i. Stauf USA, LLC; ERP-270 Perma-Seal: www.staufusa.com/#sle.

j. UZIN, a division of UFLOOR Systems Inc; UZIN PE 460 with UZIN PE 280 and UZIN NC 170 LevelStar: www.ufloorsystems.com/#sle.

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION (BASE BID)

A. Follow recommendations of testing agency.

B. Perform following operations in the order indicated:
   1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
      a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
      b. Removal of existing floor covering.
   2. Preliminary cleaning.
   3. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
   4. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
   5. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
   6. Specified remediation, if required.
   7. Patching, smoothing, and leveling, as required.
   8. Other preparation specified.
   9. Adhesive bond and compatibility test.
   10. Protection.

C. Remediations:
   1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
   2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.
   3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

3.02 REMOVAL OF EXISTING FLOOR COVERINGS (BASE BID)

A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

3.03 PRELIMINARY CLEANING (BASE BID)

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

3.04 MOISTURE VAPOR EMISSION TESTING (BASE BID)

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

C. Test in accordance with ASTM F1869 and as follows.

D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.

E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.

F. Report: Report the information required by the test method.

3.05 INTERNAL RELATIVE HUMIDITY TESTING (BASE BID)

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

C. Test in accordance with ASTM F2170 Procedure A and as follows.

D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.

E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.

F. Report: Report the information required by the test method.

3.06 ALKALINITY TESTING (BASE BID)

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.

1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.

C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.07 PREPARATION (BASE BID)

A. See individual floor covering section(s) for additional requirements.

B. Comply with recommendations of testing agency.

C. Comply with requirements and recommendations of floor covering manufacturer.

D. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.

E. Do not fill expansion joints, isolation joints, or other moving joints.

3.08 ADHESIVE BOND AND COMPATIBILITY TESTING (BASE BID)

A. Comply with requirements and recommendations of floor covering manufacturer.

3.09 APPLICATION OF REMEDIAL FLOOR COATING (CHANGE ORDER WORK)

A. Comply with requirements and recommendations of coating manufacturer.

3.10 PROTECTION (BASE BID)

A. Cover prepared floors with building paper or other durable covering.

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal deflection relief top track for metal stud partitions.

B. Acoustic insulation.

C. Gypsum wallboard.

D. Joint treatment and accessories.

E. Bullet resistant sheathing and wallboard.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 07 84 00 - Firestopping: Top-of-wall assemblies at fire rated walls.

1.03 REFERENCE STANDARDS

A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2012.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2017.

C. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products; 2010.

D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.

E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.

F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

G. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

H. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

I. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2015.

J. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

K. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.

L. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

M. GA-216 - Application and Finishing of Gypsum Board; 2013.

N. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: Bullet resistant sheathing and wallboard.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. ClarkDietrich: www.clarkdietrich.com/#sle.
   2. Jaimes Industries: www.jaimesind.com/#sle.
   3. Marino: www.marinoware.com/#sle.
   4. Phillips Manufacturing Co: www.phillipsmfg.com/#sle.
   5. Steel Construction Systems: www.steelconsystems.com/#sle.
   6. The Steel Network, Inc: www.SteelNetwork.com.
   7. Substitutions: See Section 01 60 00 - Product Requirements.

B. Non-Loadbearing Framing System Components: ASTM C645; sheet steel galvanized to G60 class.
   1. Studs: "C" shaped with flat or formed webs with knurled faces.
   2. Runners: 20 ga., U shaped, 2 inch minimum leg depth, web width sized to match wood studs specified in Section 06 10 00.
   3. Ceiling Channels: C-shaped.
   4. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.

C. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.

2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems indicated on drawings.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. CertainTeed Corporation: www.certainteed.com/#sle.
   2. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
   3. Lafarge North America Inc: www.lafargenorthamerica.com.
   4. National Gypsum Company: www.nationalgypsum.com/#sle.
   5. USG Corporation: www.usg.com/#sle.
   6. Substitutions: Not permitted.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   3. Thickness:
      a. Ceilings: 5/8 inch.
   4. Paper-Faced Products:
      a. American Gypsum Company; FireBloc Type X Gypsum Wallboard.
      b. CertainTeed Corporation; Type X Drywall.
      c. Georgia-Pacific Gypsum; ToughRock Fireguard X.
      d. National Gypsum Company; Gold Bond BRAND Fire-Shield Gypsum Board.
      e. USG Corporation; Sheetrock Brand Firecode X Panels.
      f. Substitutions: See Section 01 60 00 - Product Requirements.

C. Bullet Resistant Sheathing and Wallboard: Woven roving, multi-ply, ballistic grade fiberglass cloth with thermoset polyester resin; comply with UL 752 Level 3.
   1. Thickness: 7/16"
   2. Weight: 4.8 psf.
   3. NIJ Level: III-A
   4. Ammunition: .44 Magnum Lead Semi-Wadcutter Gas Checked.
   5. Product: ArmorCore; ballistic fiberglass panels.

2.04 Gypsum Wallboard ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 3 inch.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
   1. Products:
      a. Franklin International, Inc; Titebond GREENchoice Professional Acoustical Smoke and Sound Sealant: www.titebond.com/#sle.

b. Liquid Nails, a brand of PPG Architectural Coatings; AS-825 Acoustical Sound Sealant: www.liquidnails.com/#sle.
c. Specified Technologies Inc; Smoke N Sound Acoustical Sealant: www.stifirestop.com/#sle.
d. Substitutions: See Section 01 60 00 - Product Requirements.

C. Beads, Joint Accessories, and Other Trim: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
1. Corner Beads: Low profile, for 90 degree outside corners.
a. Products:
1) Phillips Manufacturing Co; Everlast Corner Bead: www.phillipsmfg.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.
2. L-Trim with Tear-Away Strip: Sized to fit 5/8 inch thick gypsum wallboard.
a. Products:
1) Phillips Manufacturing Co; gripSTIK L-Tear: www.phillipsmfg.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.
3. Expansion Joints:
a. Type: V-shaped metal with factory-installed protective tape.
b. Products:
1) Phillips Manufacturing Co; 093 Expansion Control Joint: www.phillipsmfg.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.

D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
2. Joint Compound: Drying type, vinyl-based, field-mixed.
3. Joint Compound: Setting type, field-mixed.

E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.

F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion resistant.

G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 TOP RUNNER INSTALLATION

A. Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
1. Level ceiling system to a tolerance of 1/1200.
2. Laterally brace entire suspension system.

C. Studs: Space studs at 16 inches on center.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
   3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Blocking: Install wood blocking for support of:
   1. Framed openings.
   2. Wall mounted cabinets.
   3. Wall mounted door hardware.
   4. Wall mounted items requiring support

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
   1. Place two beads continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

E. Bullet Resistant Sheathing and Wallboard:
   1. Install bullet resistant sheathing according to manufacturer's written recommendations and with manufacturer approved fasteners.
   2. Cover all joints between boards with a 4 inch strip of the same thickness material as the boards, centered on the joint.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
   1. Not more than 30 feet apart on walls and ceilings over 50 feet long.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 3: Walls to receive tile finish.
   3. Level 1: Wall areas above finished ceilings not exposed to view, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling and sanding is not required at base layer of double layer applications.

C. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Section 21 13 00 - Fire Suppression Sprinklers: Sprinkler heads in ceiling system.

B. Section 23 37 00 - Air Outlets and Inlets: Air diffusion devices in ceiling.

C. Section 26 51 10 - Lighting: Light fixtures in ceiling system.

1.03 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2017.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.

D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on suspension system components and acoustical units.

C. Samples: Submit two samples 6 x 6 inch in size illustrating material and finish of acoustical units.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

A. Manufacturers:
   1. CertainTeed Corporation: www.certainteed.com.
   2. Substitutions: Not permitted.

B. Acoustical Panels Type C1/ACT1: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
   1. Size: 24 by 24 inches.
   2. Thickness: 5/8 inches.
   3. Composition: Wet felted.
   4. Light Reflectance: 83 percent, determined as specified in ASTM E1264.
   5. NRC Range: 0.60 to 0.55, determined as specified in ASTM E1264.
   6. Ceiling Attenuation Class (CAC): 33, determined as specified in ASTM E1264.
   7. Edge: Reveal.
   8. Surface Color: White.
   9. Surface Pattern: Fine texture; fissured pattern.
   10. Products:
      a. Performa - Baroque Reveal BET-164 by Certainteed Ceilings.
      b. Substitutions: Not permitted.
   11. Suspension System: Exposed grid Type SS1.

2.02 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. Chicago Metallic Corporation: www.chicagometallic.com.
   3. USG: www.usg.com.
   4. CertainTeed Corporation: www.certainteed.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

C. Exposed Steel Suspension System Type SS1: Formed steel, commercial quality cold rolled; intermediate-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Construction: Double web.
   3. Finish: White painted.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

D. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.

D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

F. 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.

G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

I. Do not eccentrically load system or induce rotation of runners.

J. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.

G. Where round obstructions occur, provide preformed closures to match perimeter molding.

3.04 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 65 00
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Section 09 05 61 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

1.03 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2017.

B. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).

C. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

D. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate seaming plan.

D. Selection Samples: Submit manufacturer's complete set of color samples for Architect/Engineer's initial selection.

E. Verification Samples: Submit two samples, 6 x 6 inch in size illustrating color and pattern for each resilient flooring product specified.

F. Concrete Testing Standard: Submit a copy of ASTM F710.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: 40 square feet of each type and color.
   3. Extra Wall Base: 40 linear feet of each type and color.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect roll materials from damage by storing on end.

1.06 FIELD CONDITIONS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 TILE FLOORING

2.02 RESILIENT BASE

A. Resilient Base Type B1/RB1: ASTM F1861, Type TV, vinyl, thermoplastic; top set Style B, Cove, and as follows:
   1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   2. Height: 4 inch.
   3. Thickness: 0.125 inch thick.
   4. Finish: Satin.
   5. Length: 4 foot sections.
   6. Accessories: Premolded external corners and end stops.
   7. Manufacturer:
      a. Mannington: As indicated on drawings.
      b. Substitutions: Not permitted.

2.03 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Metal.
   1. Product: Reno-V manufactured by Schluter Systems.

D. Filler for Coved Base: Plastic.

E. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

C. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings.

B. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

3.05 RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.06 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's instructions.

3.07 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 09 68 00
CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet, stretched-in with cushion underlay.

B. Removal of existing carpet.

C. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 09 05 61 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

1.03 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2006 (Reapproved 2011).

B. CRI 104 - Standard for Installation of Commercial Carpet; 2015.

C. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

D. CRI (GLP) - Green Label Plus Testing Program - Certified Products; www.carpet-rug.org; current edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, location of edge moldings and edge bindings .
   1. Follow CRI 104 installation guidelines for layout.

C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

D. Manufacturer's Certificate: State materials meet specified physical and performance requirements.

E. Samples: Submit two samples 12 by 12 inch in size illustrating color and pattern for each carpet and cushion material specified.

F. Manufacturer's Installation Instructions: Indicate special procedures.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

H. Warranty.

1.05 DELIVERY, STORAGE AND PROTECTION

A. Deliver products in original mill wrappings register numbers clearly marked on each roll.

B. Store materials in dry, well-ventilated spaces. Protect materials from damage, dirt, stains and moisture.

C. Coordinate delivery of materials with the progress of the Work to avoid prolonged storage at the Project site.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum 5 years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum three years documented experience.

1.07 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation.

C. Ventilate installation area during installation and for 72 hours after installation.

1.08 SPECIAL WARRANTY

A. Manufacturer's lifetime warranty against development of continuous pile yarn runs, "zippering", edge ravel, backing delamination, color loss and staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Carpet:
   1. Mohawk Group; www.mowhawkgroup.com.
   2. Substitutions: Not permitted.

2.02 CARPET

A. Carpet, Type F2/CPT1: Tufted, colorstrand nylon - broadloom.
   1. Product: Pure Genius II Collection.
   2. Style Name: Artist II.
   3. Style Number: BQ380.
   4. Surface Texture: Textured Multi Colored Loop.
   5. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").
   6. VOC Content: Provide CRI Green Label Plus certified product.
   7. Color: As selected from manufacturers complete color range.
   8. Roll Width: 12 ft.
   9. Gage: 1/10 inch.
   10. Dye Method: Solution Dyed / Yard dyed.
   11. Backing:
      a. Material: Weldlok.
   12. Pattern Repeat: 0.6" (W) x 1.0" (L).

13. Soill Release Technology: Sentry Soil Protection.
14. Static: AATCC-134 Under 3.5 KV.
15. Flammability: ASTM E648 Class 1.
16. Smoke Density: ASTM E 6262 Less than 450.
17. Pattern Direction: Install Carpeting with rolls running in the east/west direction in the building. Typical.

2.03 CUSHION

A. Cushion: Synthetic Fiber Carpet Cushion.
   1. Product: Contrax 320 manufactured by Luxe Carpet Cushion.
   2. Nominal Thickness: 1/4 inch.
   3. Roll Width: 72 inches.
   4. Density: 6.6 lb/cu ft.
   5. Film: No.
   6. Color: Gray.
   7. R-Value: 1.8.
   8. ASTM E648: Class 1.
   9. Pill Test: Pass.
   10. Location: Install cushion back under all carpeting products.

2.04 ACCESSORIES

A. Sub-Floor Filler: Type recommended by carpet manufacturer.

B. Tackless Strip: Carpet gripper, of type recommended by carpet manufacturer to suit application, with attachment devices.

C. Moldings and Edge Strips: Vinyl, manufacturer's standard color as selected by Architect to complement interior finishes color pallette.

D. Adhesives - General: Compatible with materials being adhered; maximum VOC content of 50 g/L; CRI Green Label certified; approved by manufacturer.

E. Seam Adhesive: Recommended by manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet.

B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesives to sub floor surfaces.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 09 05 61.
   2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing carpet and carpet cushion.

B. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet and cushion in accordance with manufacturer's instructions and CRI 104 (Commercial).

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Lay out carpet and locate seams in accordance with shop drawings.
   1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
   2. Do not locate seams perpendicular through door openings.
   3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
   4. Locate change of color or pattern between rooms under door centerline.
   5. Provide monolithic color, pattern, and texture match within any one area.

E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

3.04 STRETCHED-IN CARPET

A. Install tackless strips with pins facing the wall around entire perimeter, except across door openings. Use edge strip where carpet terminates at other floor coverings.

B. Space tackless strips slightly less than carpet thickness away from vertical surfaces, but not more than 3/8 inch.

C. Install cushion in maximum size pieces using spot adhesive to adhere to sub-floor.

D. Lay out cushion so that seams will be perpendicular to, or offset from, minimum 6 inches from carpet seams.

E. Butt cushion edges together and tape seams.

F. Trim cushion tight to edge of tackless strip and around projections and contours.

G. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to all cut edges immediately.

H. Join seams using hot adhesive tape. Form seams straight, not overlapped or peaked, and free of gaps.

I. Following seaming, hook carpet onto tackless strip at one edge, power stretch, and hook firmly at other edges. Follow manufacturer's recommendations for method and amount of stretch.

J. Trim carpet neatly at walls and around interruptions. Tuck edges into space between tackless strip and wall.

3.05 DEMONSTRATION AND TRAINING

A. Upon completion of installation, notify manufacturer to perform, within 30 days after installation, a carpet care awareness presentation in-service for the Owner's maintenance personnel.

3.06 PROTECTION

A. Use of plastic sheeting is not permitted as a protection material.

B. Protect carpet installations from rolling traffic with sheets of hardboard or plywood.

C. Prohibit all traffic from carpeted surfaces for a minimum of 24 hours after installation or as recommended by manufacturer to allow for proper curing of adhesive.

D. Prohibit water cleaning of carpet for a period of 30 days after installation.

3.07 CLEANING

A. Remove excess adhesive from floor and wall surfaces without damage.

B. Clean and vacuum carpet surfaces.

C. Prohibit water cleaning of carpet for a period of 30 days after installation.

END OF SECTION

SECTION 09 90 00
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints and other coatings.

C. Scope: Finish all interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:

D. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically so indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames: Shop-

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Samples For Selection: Submit two color fan/chain samples, illustrating range of colors and textures available for each surface finishing product scheduled.

C. Samples For Verification: Submit three painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on cardstock sheet, 8½ x 11 inch in size.
   1. Identify each sample by:
      a. Manufacturer, product name and product ID number.
      b. Color name and number.
      c. Sheen/gloss level.
      d. Supplier/distributor.
      e. Contact name and telephone number.

D. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.05 QUALITY ASSURANCE

A. Single Source Responsibility: Provide primer, undercoater and finish coat for paint and other coating products from a single manufacturer for consideration of warranty and Owner maintenance.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

C. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years documented experience and approved by manufacturer.

D. Conform to federal, state and local regulations, including VOC rules, at the time of application.

E. Equipment: Comply with current OSHA regulations.

F. Products: Maintain at Project Site a copy of Material Safety Data Sheets for each product used.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Paints:
   1. PPG Architectural Finishes, Inc: www.ppgaf.com/#sle.

C. Substitutions: Not permitted.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each coating material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
   1. Gypsum Board: Interior Institutional Low Odor/VOC Primer Sealer; MPI #149.

C. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - All Interior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete masonry, brick, wood, and shop primed steel.
   1. Two top coats and one coat primer.
   2. Top Coat(s): Institutional Low Odor/VOC Interior Latex; MPI 144 X-GREEN.
   3. Top Coat Product(s):
      a. PPG Paint: Product No. 9-300XI/01 - Pure Performance Interior Eggshell & Semi-Gloss Latex; Color/s As Indicated on Drawings.
   4. Primer(s) Product(s):
      a. PPG Paint: Product No. DRP3160 - Wonder-Pure No VOC Interior Primer.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

H. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

I. Interior Wood Surfaces to Receive Opaque 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. Back prime concealed surfaces before installation.

3.02 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance.

D. Sand wood and metal surfaces lightly between coats to achieve required finish.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

END OF SECTION

SECTION 10 26 01
WALL AND CORNER GUARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Blocking and supports.

B. Section 12 36 00 Countertops: Solid surfacing as wall protection.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

D. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate physical dimensions, features, anchorage details, and rough-in measurements.

C. Samples: Submit two sections of corner guard, 24 inch long, illustrating component design, configuration, color and finish.

D. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wall and Corner Guards:
   1. Koroseal: www.koroseal.com.
   2. Construction Specialties, Inc: www.c-sgroup.com.
   3. Inpro Corporation: www.inprocorp.com.
   4. Substitutions: Not permitted.

2.02 COMPONENTS

A. Corner Guards (Type CG1) - Extruded Surface Mounted:
   1. Material: High impact vinyl.
   2. Performance: Resist lateral impact force of 100 lbs at any point without damage or permanent set.

3. Fire Resistance: Where fire rating is specified for the wall in which the guard is mounted, provide assemblies that have been tested in accordance with ASTM E119 for the same rating as the wall.
4. Surface Burning Characteristics: Provide assemblies with flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
5. Width of Wings: 1-1/2 inches.
6. Corner: Square.
7. Color: As selected from manufacturer's standard colors.
8. Length: One piece: to height of ceiling.
9. Basis of Design Product: G815 Extruded Corner Guard; Koroseal - Korogard.
10. Mounting: Continuous self adhesive tape.

2.03 FABRICATION

A. Fabricate components with tight joints, corners and seams.

B. Form end trim closure by capping and finishing smooth.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

B. Verify that field measurements are as indicated on Drawings.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to wall framing members only.

B. Position corner guard 4.5 inches above finished floor to ceiling.

3.03 TOLERANCES

A. Maximum Variation From Required Height: 1/4 inch.

B. Maximum Variation From Level or Plane For Visible Length: 1/4 inch.

3.04 SCHEDULE

A. Locations as indicated on drawings.

END OF SECTION

SECTION 12 24 00
WINDOW SHADES - MECHOSHADE SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manual roller shades and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Concealed wood blocking for attachment of shade brackets and accessories.

1.03 REFERENCE STANDARDS

A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.

B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2015.

C. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

D. WCMA A100.1 - Safety of Window Covering Products; 2018.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product to be used including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.

C. Shop Drawings: Include shade schedule indicating size, location and keys to details.

D. Selection Samples: Include fabric samples in full range of available colors and patterns.

E. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

F. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this type with minimum ten years of documented experience with shading systems of similar size, type, and complexity; manufacturer's authorized representative.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.

B. Handle and store shades in accordance with manufacturer's recommendations.

1.07 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide manufacturer's standard, non-depreciating warranty, for interior shading only, covering the following:
   1. Shade Hardware: 10 years unless otherwise indicated.
   2. Shade Fabric: 10 years unless otherwise indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: MechoShade Systems LLC; Mecho/5; www.mechoshade.com/#sle.

B. Other Acceptable Manufacturers:
   1. Draper Inc.; Clutch Operated FlexShade: www.draperinc.com.
   2. Products by listed manufacturers are subject to compliance with specified requirements.

C. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ROLLER SHADES

A. General:
   1. Provide shade system components that are capable of being removed or adjusted without removing mounted shade brackets or cassette support channel.
   2. Provide shade system that operates smoothly when shades are raised or lowered.

B. Roller Shades Type SP1 - Basis of Design: MechoShade Systems LLC; Mecho/5 System; www.mechoshade.com/#sle.
   1. Description: Single roller, manually operated fabric window shades.
   2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
   3. Roller Tubes:
      a. Material: Extruded aluminum.
      b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
      c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.

d. Roller tubes to be capable of being removed and reinstalled without affecting roller shade limit adjustments.

4. Hembars: Designed to maintain bottom of shade straight and flat.
   a. Style: Full wrap fabric covered bottom bar, flat profile with heat sealed closed ends.
5. Clutch Operator: Manufacturer's standard material and design integrated with bracket/brake assembly.
   a. Provide a permanently lubricated brake assembly mounted on a oil-impregnated hub with wrapped spring clutch.
   b. Brake must withstand minimum pull force of 50 pounds in the stopped position.
   c. Mount clutch/brake assembly on the support brackets, fully independent of the roller tube components.
6. Drive Chain: Continuous loop stainless steel beaded ball chain, 95 pound minimum breaking strength. Provide upper and lower limit stops.
   a. Chain Retainer: Chain tensioning device complying with WCMA A100.1.
7. Accessories:
   a. Fascia: Removable extruded aluminum fascia, size as required to conceal shade mounting, attachable to brackets without exposed fasteners; clear anodized finish.
      1) Fascia to be capable of installation across two or more shade bands in one piece.
      2) Provide single fascia to accommodate regular roll shades.
      3) Provide front and rear double fascia.
      4) Color: Black.

2.03 Shade FABRIC

A. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
   1. Material Composition:
      a. 100 percent polyester.
   2. Performance Requirements:
      a. Flammability: Pass NFPA 701 large or small scale test.
   3. Color: As selected by Architect/Engineer from manufacturer’s full range of colors.
   4. Fabrication:
      a. Fabric Orientation: Railroaded, fabric is turned 90 degrees off the roll.
         1) Battens: Manufacturer's standard material, full width of shade, and enclosed in welded shade fabric pocket; locate as indicated on drawings.
         2) Seams for Railroaded Fabric: Manufacturer's standard sewn seam; locate as indicated on drawings.
   5. Products:
      a. MechoShade Systems LLC Inc; Soho - 1600 Series (3% open): www.mechoshade.com/#sle.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine finished openings for deficiencies that may preclude satisfactory installation.

B. Start of installation shall be considered acceptance of substrates.

3.02 PREPARATION

A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

B. Coordinate with window installation and placement of concealed blocking to support shades.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.

B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.04 CLEANING

A. Clean soiled shades and exposed components as recommended by manufacturer.

B. Replace shades that cannot be cleaned to "like new" condition.

3.05 CLOSEOUT ACTIVITIES

A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.

B. See Section 01 79 00 - Demonstration and Training, for additional requirements.

C. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.

3.06 PROTECTION

A. Protect installed products from subsequent construction operations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 12 36 00
COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Countertops for architectural cabinet work.

B. Wall-hung counters.

1.02 RELATED REQUIREMENTS

A. Section 06 41 00 - Custom Casework.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2016, with Errata (2018).

D. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.

E. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

F. PS 1 - Structural Plywood; 2009.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Specimen warranty.

C. Shop Drawings: Complete details of materials and installation; combine with shop drawings of cabinets and casework specified in other sections.

D. Verification Samples: For each finish product specified, minimum size 6 inches square, representing actual product, color, and patterns.

E. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

F. Installation Instructions: Manufacturer's installation instructions and recommendations.

G. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOPS

A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Solid Surfacing Countertops (Type SSM1): Solid surfacing sheet or plastic resin casting over continuous substrate.
   1. Flat Sheet Thickness: 1/2 inch, minimum.
   2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
      a. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
      b. NSF approved for food contact.
      c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
      d. Product:
         1) Wilsonart Solid Surface: www.wilsonart.com.
         2) Colors: As indicated on the drawings
         3) Substitutions: Not permitted.
   3. Other Components Thickness: 1/2 inch, minimum.
   4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch thick; edge profile as indicated on drawings.
   5. Back and End Splashes: Same sheet material, square top; minimum 4 inches high x 1/2 inch thick.
   6. Skirts: Where indicated on drawings.
   7. Fabricate in accordance with AWI/AWMAC/WI (AWS) standards, Section 11 - Premium Grade.

2.02 MATERIALS

A. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch thick; join lengths using metal splines.

B. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

C. Joint Sealant: Mildew-resistant silicone sealant, clear.

D. Grommets for Holes in Countertops: As specified in Section 06 41 00.

E. Support Brackets: 2 x 2 1/4 inch thick painted steel construction.
   1. Application: Provide where no other support (e.g. fabricated plastic laminate support brackets) is indicated on Drawings.
   2. Manufacturers:
      a. A&M Hardware, Inc.: www.aandmhardware.com.
      b. Rakks/Rangine Corporation: www.rakks.com.
   3. Products:
      a. Counters Up To 18 Inches Deep:
         1) A&M #C-12.
         2) Rakks #EH-1212.
      b. Counters 19 To 24 Inches Deep:
         1) A&M #C-18.
         2) Rakks #EH-1818.
      c. Counters 25 To 30 Inches Deep:
         1) A&M #C-24.
         2) Rakks #EH-2424.
   4. Use A&M brackets or Rakks "Flush Mount" configuration (vertical leg concealed in wall) at all drywall locations and where indicated on Drawings.

2.03 FABRICATION

A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
   1. Join lengths of tops using best method recommended by manufacturer.
   2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
   3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
   1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
   2. Height: 4 inches, unless otherwise indicated.

C. Solid Surfacing: Fabricate tops up to 144 inches long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

D. Wall-Mounted Counters: Provide skirts, aprons, and brackets as indicated on Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect/Engineer of unsatisfactory preparation before proceeding.

C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 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.

3.03 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Seal joints between back/end splashes and vertical surfaces.

3.04 TOLERANCES

A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.

B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.

C. Field Joints: 1/16 inch wide, maximum.

3.05 CLEANING

A. Clean countertops surfaces thoroughly.

3.06 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 21 05 00
COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe, fittings, sleeves, escutcheons, seals, and connections for sprinkler systems.

1.02 RELATED REQUIREMENTS

A. Section 21 13 00 - Fire Suppression Sprinklers: Sprinkler systems design.

1.03 REFERENCE STANDARDS

A. ASME A112.18.1 - Plumbing Supply Fittings; 2012.

B. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Qualifications; 2015.

C. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2010.

D. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.

E. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250; 2011.

F. ASME B16.11 - Forged Fittings, Socket-welding and Threaded; 2011.

G. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999 (Reapproved 2014).

H. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers catalogue information. Indicate valve data and ratings.

C. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections.

D. Project Record Documents: Record actual locations of components and tag numbering.

E. Operation and Maintenance Data: Include installation instructions and spare parts lists.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified this section.
   1. Minimum three years experience.

C. Conform to UL and FM requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store valves in shipping containers, with labeling in place.

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.

PART 2 PRODUCTS

2.01 FIRE PROTECTION SYSTEMS

A. Sprinkler Systems: Conform to NFPA 13.

B. Welding Materials and Procedures: Conform to ASME BPVC-IX.

2.02 ABOVE GROUND PIPING

A. Steel Pipe: Schedule 40, black.
   1. Steel Fittings: ASME B16.11, forged steel socket welded and threaded.
   2. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings and ASME B16.4, threaded fittings.
   3. Malleable Iron Fittings: ASME B16.3, threaded fittings and ASTM A47/A47M.
   4. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.

2.03 ESCUTCHEONS

A. Material:
   1. Metals and Finish: Comply with ASME A112.18.

B. Construction:
   1. One-piece for mounting on chrome-plated tubing or pipe and one-piece or split-pattern type elsewhere.
   2. Internal spring tension devices or setscrews to maintain a fixed position against a surface.

2.04 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

B. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.

PART 3 EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and foreign material, from inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

A. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.

B. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.

C. Install piping to conserve building space, to not interfere with use of space and other work.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Pipe Hangers and Supports:
   1. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
   2. Place hangers within 12 inches of each horizontal elbow.
   3. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
   4. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

G. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.

H. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

I. Do not penetrate building structural members unless indicated.

J. Escutcheons:
   1. Install and firmly attach escutcheons at piping penetrations into finished spaces.
   2. Provide escutcheons on both sides of partitions separating finished areas through which piping passes.
   3. Use chrome plated escutcheons in occupied spaces and to conceal openings in construction.

K. 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 21 13 00
FIRE SUPPRESSION SPRINKLERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wet-pipe sprinkler system.

B. System design, installation, and certification.

1.02 RELATED REQUIREMENTS

A. Section 21 05 00 - COMMON WORK RESULTS FOR FIRE SUPPRESSION: Pipe, fittings, and valves.

1.03 REFERENCE STANDARDS

A. FM Approval Guide; Factory Mutual Global; current edition.

B. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.

C. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

C. Shop Drawings:
   1. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.
   2. Submit shop drawings to Authority Having Jurisdiction for approval. Submit proof of approval to Architect/Engineer.

D. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Sprinklers: Type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
   3. Sprinkler Wrenches: For each sprinkler type.

F. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

1.05 QUALITY ASSURANCE

A. Conform to UL (DIR) requirements.

B. Designer Qualifications: Design system under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located. Or a holder of a valid NICET level III or IV Sprinkler Technician.

C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

D. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years experience approved by manufacturer.

E. Equipment and Components: Provide products that bear UL (DIR) label or marking.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

PART 2 PRODUCTS

2.01 SPRINKLER SYSTEM

A. Sprinkler System: Provide coverage for building areas noted.

B. Occupancy: Light hazard; comply with NFPA 13.

C. Water Supply: Determine volume and pressure from water flow test data.

D. Storage Cabinet for Spare Sprinklers and Tools: Steel, in location designated.

2.02 SPRINKLERS

A. Suspended Ceiling Type: Concealed pendant type with matching push on escutcheon plate.
   1. Response Type: Quick.
   2. Coverage Type: Standard.
   3. Finish: Enamel, color white.
   4. Escutcheon Plate Finish: Enamel, color white.
   5. Fusible Link: Glass bulb type temperature rated for specific area hazard.

2.03 STAINLESS STEEL FLEXIBLE DROPS

A. Manufacturers:
   1. Flex Head Industries, Inc.
   2. Aqua Flex.
   3. Victaulic Company.

B. In lieu of rigid pipe offsets or return bends. Braided type 304 stainless steel flexible tube with male threaded pipe nipple for connection to branchline piping, and a zinc plated steel reducer with a 1/2" or 3/4" NPT female thead for connection to a sprinkler head. The hoses shall be factory-pressure tested to 400 psi.

C. Flexible drop shall attach to the ceiling grid with open gate bracket and can be installed without the use of special tools.

D. The braided drop shall be FM approved for sprinkler services to 200 psi.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with referenced NFPA design and installation standard.

B. Install equipment in accordance with manufacturer's instructions.

C. Place pipe runs to minimize obstruction to other work.

D. Place piping in concealed spaces above finished ceilings.

E. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.

F. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.

G. Flush entire piping system of foreign matter.

H. Hydrostatically test entire system.

I. Require test be witnessed by Authority Having Jurisdiction.

3.02 INTERFACE WITH OTHER PRODUCTS

A. Ensure required devices are installed and connected as required to fire alarm system.

3.03 SCHEDULES

A. System Hazard Areas:
   1. Offices: Light Hazard.
   2. Equipment and Storage Rooms: Ordinary Hazard, Group 2.
   3. Other Areas: In accordance with NFPA 13.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing, adjustment, and balancing of air systems.

B. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS

A. AABC MN-1 - AABC National Standards for Total System Balance; Associated Air Balance Council; 2002.

B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008.

C. NEBB (TAB) - Procedural Standards for Testing Adjusting Balancing of Environmental Systems; 2005, Seventh Edition.

D. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.

1.03 SUBMITTALS

A. 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/Engineer 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.
   6. Include the following on the title page of each report:
      a. Name of Testing, Adjusting, and Balancing Agency.
      b. Address of Testing, Adjusting, and Balancing Agency.
      c. Telephone number of Testing, Adjusting, and Balancing Agency.
      d. Project name.
      e. Project location.
      f. Project Engineer.
      g. Report date.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Perform total system balance in accordance with one of the following:
   1. AABC MN-1, 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. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.
4. 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. Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.

D. TAB Agency Qualifications:
1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
2. Certified by one of the following:
a. AABC, Associated Air Balance Council: www.aabchq.com; upon completion submit AABC National Performance Guaranty.
b. NEBB, National Environmental Balancing Bureau: www.nebb.org/#sle.
c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org/#sle.

E. TAB Supervisor Qualifications: Certified by same organization as TAB agency.

3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Duct systems are clean of debris.
4. Access doors are closed and duct end caps are in place.
5. Air outlets are installed and connected.
6. Duct system leakage is minimized.

3.03 ADJUSTMENT TOLERANCES

A. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

3.04 RECORDING AND ADJUSTING

A. Ensure recorded data represents actual measured or observed conditions.

B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.05 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. Measure air quantities at air inlets and outlets.

C. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

D. 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.

3.06 SCOPE

A. Test, adjust, and balance the following:
   1. Air Inlets and Outlets
   2. Variable Refrigerant Flow System

END OF SECTION

SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Duct insulation.

1.02 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

B. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

C. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

C. Manufacturer's Instructions: Indicate installation procedures necessary to ensure acceptable workmanship and that installation standards will be achieved.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified in this section, with minimum three years of experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.06 FIELD CONDITIONS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 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.

2.02 GLASS FIBER, FLEXIBLE

A. Manufacturers:
   1. Knauf Fiber Glass.
   2. Johns Manville Corporation.
   3. Owens Corning Corp.
   4. CertainTeed Corporation.

B. Vapor Barrier Jacket:
   1. Kraft paper with glass fiber yarn and bonded to aluminized film.
   2. Moisture Vapor Permeability: 0.04 perm inch, when tested in accordance with ASTM E96/E96M.
   3. Secure with pressure sensitive tape.

C. Vapor Barrier Tape:
   1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

D. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that ducts have been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 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. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

E. External Duct Insulation Application:
   1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
   2. Secure insulation without vapor barrier with staples, tape, or wires.
   3. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.
   4. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.

5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

3.03 SCHEDULES

A. Supply Ducts:
   1. Flexible Glass Fiber Duct Insulation: 1-1/2 inches thick.

END OF SECTION

SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal ductwork.

B. Nonmetal ductwork.

1.02 RELATED REQUIREMENTS

A. Section 23 07 13 - Duct Insulation: External insulation.

B. Section 23 33 00 - Air Duct Accessories.

C. Section 23 37 00 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

A. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; 2013.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2017.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.

F. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

1.04 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A standards.

1.05 FIELD CONDITIONS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 MATERIALS

A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G90/Z275 coating.

B. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
   1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
   2. VOC Content: Not more than 250 g/L, excluding water.

3. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.

C. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

D. Hanger Cable & Fastener:
1. Cable: Galvanized high tensile steel cable to EN12385. Standard lengths from 5 ft - 30 ft.

	No. 1	No. 2	No. 3 (Standard)	No. 3 (Trapeze)	No. 4	No. 5
Cable Dia. (in.)	1/16	5/64	1/8	1/8	3/16	1/4
Strand configuration	7x7	7x7	7x7	1x19	7x19	7x19
Min. breaking load (lbs)	125	500	1,000	600	2,475	3,575
Max. safe working load (lbs)	25	100	200	200	495	715
Tensile strength (lbs/sq. in.)	256,700	256,700	256,700	256,700	256,700	256,700

2. Fastener:
   a. Housing: Type ZA2 Zinc.
   b. Wedge: Sintered steel hardened to minimum 56 Rockwell C.
   c. Spring: Stainless steel, Type 302.
   d. End Cap: No. 1-4 = UV stabilized homopolymer polypropylene; No. 5 = Type ZA2 zinc.
   e. Screws: No. 5 only = Stainless steel, Type 304
3. Load Rating: All products 5:1 safety factor.
4.

Size	Maximum Safe Working Load
No. 1	25 lbs
No. 2	100 lbs
No. 3	200 lbs
No. 4	495 lbs
No. 5	715 lbs

5. Manufacturers:
   a. Gripple Inc.: Air Flow Company, Inc., Tom Class - 630-400-3344.
   b. Substitutions: See Section 01 60 00 - Product Requirements.

E. Ducts: Galvanized steel, unless otherwise indicated.

F. Low Pressure Supply (System with Cooling Coils): 2 inch w.g. pressure class, galvanized steel.

G. Medium and High Pressure Supply: 4 inch w.g. pressure class, galvanized steel.

H. Ductmate or WDCI duct connection systems are acceptable. Ductwork constructed using these systems shall refer to manufacturer's recommendations for sheet metal gage intermediate and joint reinforcement.

2.02 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.

B. Transfer Air and Sound Boots: 1/2 inch w.g. pressure class, lined galvanized steel.

C. No variation of duct configuration or size permitted except by written permission. Size round duct installed in place of rectangular ducts in accordance with ASHRAE Handbook - Fundamentals.

D. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

E. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.

F. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

G. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

H. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.

2.03 MANUFACTURED DUCTWORK AND FITTINGS

A. Flexible Ducts: Multiple layers of aluminum laminate supported by helically wound spring steel wire.
   1. Insulation: Fiberglass insulation with aluminized vapor barrier film.
   2. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.
   3. Maximum Velocity: 4000 fpm.
   4. Temperature Range: Minus 20 degrees F to 210 degrees F.

B. Transverse Duct Connection System: SMACNA "E" rated rigidly class connection, interlocking angle and duct edge connection system with sealant, gasket, cleats, and corner clips in accordance with SMACNA (DCS).

PART 3 EXECUTION

3.01 INSTALLATION

A. Install, support, and seal ducts in accordance with SMACNA (DCS).

B. Install in accordance with manufacturer's instructions.

C. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

D. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.

E. Duct sizes indicated shall be of sizes indicated. However, necessary changes in shape offsets or crossovers to clear piping, lighting, building construction obstructions, etc. shall be made without additional cost.

F. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

G. Use double nuts and lock washers on threaded rod supports.

H. Connect diffusers or light troffer boots to low pressure ducts directly or with 5 feet maximum length of flexible duct held in place with strap or clamp.

END OF SECTION

SECTION 23 33 00
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Volume control dampers.

B. Ductwork accessories.

1.02 RELATED REQUIREMENTS

A. Section 23 31 00 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS

A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.

B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect dampers from damage to operating linkages and blades.

PART 2 PRODUCTS

2.01 FLEXIBLE DUCTS FORMING BRACE

A. Manufacturers:
   1. Titus; Model FlexRight.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

B. UL Listed. Radius forming brace to hold flexible duct into a 90 degree elbow. Fits flexible duct sizes and diffuser inlets from 4 inches to 16 inches in diameter. Manufactured from copolymer polyproylene.

2.02 VOLUME CONTROL DAMPERS

A. Manufacturers:
   1. Ruskin Company.
   2. Greenheck.
   3. Air Balance.

B. Fabricate in accordance with SMACNA (DCS) and as indicated.

C. Single Blade Dampers: Fabricate for duct sizes up to 6 by 30 inch.
   1. Fabricate for duct sizes up to 6 by 30 inch.
   2. Blade: 24 gage, 0.0239 inch, minimum.

D. End Bearings: Except in round ducts 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon, thermoplastic elastomer, or sintered bronze bearings.

E. Quadrants:
   1. Provide locking, indicating quadrant regulators on single and multi-blade dampers.

2. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.

2.03 MISCELLANEOUS PRODUCTS

A. Duct Opening Closure Film: Mold-resistant, self-adhesive film to keep debris out of ducts during construction.
   1. Thickness: 2 mils.
   2. High tack water based adhesive.
   3. UV stable light blue color.
   4. Elongation Before Break: 325 percent, minimum.

PART 3 EXECUTION

3.01 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. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.

C. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION

SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusers.

B. Registers/grilles.
   1. Wall-mounted, exhaust and return register/grilles.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (Reaffirmed 2011).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.05 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metalaire, a brand of Metal Industries Inc.

B. Price Industries.

C. Titus.

D. Nailor.

E. Carnes.

2.02 SQUARE CEILING DIFFUSERS

A. Type: Provide square, stamped, multi-core diffuser to discharge air in four way pattern.

B. Connections: Round.

C. Frame: Provide inverted T-bar type.

D. Fabrication: Steel with baked enamel finish.

E. Color: white.

F. Accessories: Provide radial opposed blade volume control damper; removable core with damper adjustable from diffuser face.

G. Titus Model TMS.

2.03 WALL EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, horizontal face.

B. Frame: 1-1/4 inch margin with countersunk screw mounting.

C. Fabrication: Steel frames and blades, with factory baked enamel finish.

D. Color: White.

E. Titus Model 350RL.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

END OF SECTION

SECTION 23 81 28
VARIABLE REFRIGERANT FLOW

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Variable refrigerant volume HVAC system includes:
   1. Outdoor/Condensing heat pump unit(s).
   2. Indoor/Evaporator units.
   3. Refrigerant piping.
   4. Control panels.
   5. Control wiring.

1.02 RELATED REQUIREMENTS

A. Section 26 27 17 - Equipment Wiring: Power connections to equipment.

1.03 REFERENCE STANDARDS

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; Air-Conditioning, Heating, and Refrigeration Institute; 2008.

B. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc; 2010, Including All Addenda (ANSI/ASHRAE/IESNA Std 90).

C. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. Design Data:
   1. Provide design calculations showing that system will achieve performance specified.
   2. Provide design data required by ASHRAE 90.1.

B. Product Data: Submit manufacturer's standard data sheets showing the following for each item of equipment, marked to correlate to equipment item markings shown in the contract documents:
   1. Outdoor/Central Units:
      a. Refrigerant Type and Size of Charge.
      b. Cooling Capacity: Btu/h.
      c. Heating Capacity: Btu/h.
      d. Cooling Input Power: Btu/h.
      e. Heating Input Power: Btu/h.
      f. Operating Temperature Range, Cooling and Heating.
      g. Air Flow: Cubic feet per minute.
      h. Fan Curves.
      i. External Static Pressure (ESP): Inches WG.
      j. Sound Pressure Level: dB(A).
      k. Electrical Data:
         1) Maximum Circuit Amps (MCA).

2) Maximum Fuse Amps (MFA).
3) Maximum Starting Current (MSC).
4) Full Load Amps (FLA).
5) Total Over Current Amps (TOCA).
6) Fan Motor: HP.

l. Weight and Dimensions.
m. Maximum number of indoor units that can be served.
n. Maximum refrigerant piping run from outdoor/condenser unit to indoor/evaporator unit.
o. Maximum height difference between outdoor/condenser unit to indoor/evaporator unit, both above and below.
p. Control Options.

2. Indoor/Evaporator Units:
a. Cooling Capacity: Btu/h.
b. Heating Capacity: Btu/h.
c. Cooling Input Power: Btu/h.
d. Heating Input Power: Btu/h.
e. Air Flow: Cubic feet per minute.
f. Fan Curves.
g. External Static Pressure (ESP): Inches WG.
h. Sound Pressure level: dB(A).
i. Electrical Data:
1) Maximum Circuit Amps (MCA).
2) Maximum Fuse Amps (MFA).
3) Maximum Starting Current (MSC).
4) Full Load Amps (FLA).
5) Total Over Current Amps (TOCA).
6) Fan Motor: HP.

j. Maximum Lift of Built-in Condensate Pump.
k. Weight and Dimensions.
l. Control Options.

3. Control Panels: Complete description of options, control points, zones/groups.

C. Shop Drawings: Installation drawings custom-made for this project; include as-designed HVAC layouts, locations of equipment items, refrigerant piping sizes and locations, condensate piping sizes and locations, remote sensing devices, control components, electrical connections, control wiring connections. Include:
1. Detailed piping diagrams, with branch balancing devices.
2. Condensate piping routing, size, and pump connections.
3. Detailed power wiring diagrams.
4. Detailed control wiring diagrams.
5. Locations of required access through fixed construction.
6. Drawings required by manufacturer.

D. Operating and Maintenance Data:
1. Manufacturer's complete standard instructions for each unit of equipment and control panel.

2. Custom-prepared system operation, troubleshooting, and maintenance instructions and recommendations.
3. Identification of replaceable parts and local source of supply.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company that has been manufacturing variable refrigerant volume heat pump equipment for at least 5 years.

B. Installer Qualifications: Trained and approved by manufacturer of equipment.

C. Equipment shall be AHRI certified at performance conditions scheduled.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle equipment and refrigerant piping according to manufacturer's recommendations.

1.07 WARRANTY

A. System: Provide manufacturer's limited warranty for five (5) years from date of installation. Contractor shall meet all qualifications and submit required reports to obtain warranty.

B. Compressors: Provide manufacturer's limited warranty for seven (7) years from date of installation. During the stated period, should any part fail due to defects in material and workmanship, it shall be repaired or replaced at the discretion of manufacturer's terms and conditions. All warranty service work shall be preformed by a manufacturer factory trained service professional.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: The system design shown in the contract documents is based on equipment and system designed by Carrier.

B. Systems manufactured by other manufacturers will not be considered.

2.02 HVAC SYSTEM DESIGN

A. System Operation: Heating or cooling, selected at system level.
   1. Zoning: Provide capability for temperature control for each individual indoor/evaporator unit independently of all other units.
   2. Provide a complete functional system that achieves the specified performance based on the specified design conditions and that is designed and constructed according to the equipment manufacturer's requirements.
   3. Conditioned spaces are shown on the drawings.
   4. Outdoor/Condenser unit locations are shown on the drawings.
   5. Indoor/Evaporator unit locations are shown on the drawings.
   6. Required equipment unit capacities are shown on the drawings.
   7. Connect equipment to condensate piping; condensate piping is not shown on the drawings.

B. Controls: Provide the following control interfaces:
   1. For Each Indoor/Evaporator Unit: One wall-mounted wired "local" controller, with temperature sensor; locate where directed, in each space.

2.03 OUTDOOR HEAT PUMP UNIT

A. General
   1. Factory assembled, single piece, air-cooled outdoor unit. Contained within the enclosure are the factory wiring, piping, controls, and compressor.

B. Unit Cabinet
   1. The unit cabinet shall be constructed of galvanized steel, bonderized and coated with baked-enamel finish on inside and outside.
   2. The unit access panel shall be removable with the minimal screws and provides full access to the compressor, fan, and control components.
   3. The outdoor compartment shall be isolated and has an acoustic lining to assure quiet operation.

C. Fan
   1. The outdoor fans shall be direct-drive propeller type, and discharge air horizontally. The fan draws air through the outdoor coil.
   2. Outdoor fan motors shall be multi-speed, totally-enclosed, single phase motors with permanently lubricated ball bearings. The motor is protected by internal thermal overload protection.
   3. The shaft shall have an inherent corrosion resistance.
   4. Outdoor fan openings shall be equipped with metal/mesh PVC coated protection grille over fan.

D. Coil
   1. The coil shall be constructed of aluminum golden hydrophilic pre−coated fins mechanically bonded to seamless copper tubes, which are cleaned, dehydrated and sealed.

E. Refrigerant Piping and Components
   1. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated with twin-tube, flexible , closed-cell, CFC-free (ozone depletion potential of zero), elastomeic material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft/degree F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insuation will not contribute significantly to fire and up to 1" thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102.
   2. All refrigerant connections between outdoor and indoor units shal be flare type.
   3. The outdoor unit must have the ability to operate within the following refrigerant piping and height limitations without the need for line size changes, traps or addition oil.
      a. Height differential - Indoor unit above outdoor unit = 131 feet (Max)
      b. Height differential - Indoor unit below outdoor unit = 164 feet (Max)
      c. Distance between outdoor unit and farthest indoor unit = 262 feet (Max)
      d. Distance between outdoor unit and branch box = 180 feet (Max)

e. Length from branch box to farthest indoor unit = 82 feet (Max)
f. Total length between branch box and all connected indoor units = 311 feet (Max)
g. Total length = 492 feet (Max)

4. Refrigerant circuit components include multiple brass external liquid line service valves with service gauge connection port, multiple suction line service valves with a service gage connection port, accumulator, reversing valve, electronic expansion valves.

F. Compressor
1. The compressor shall be fully hermetic variable speed rotary type.
2. The compressor shall be inverter driven type.
3. The compressor shall be equipped with an oil system, operating oil charge, and motor.
4. The motor shall be suitable for operation in a refrigerant and oil atmosphere.
5. The compressor assembly shall be installed on rubber vibration isolators.
6. The inverter and compressor shall be protected against over temperature and over current.

G. Safeties
1. Operating safeties shall be factory selected, assembled, and tested. The minimum functions include the following:
a. Compressor discharge over temperature protection.
b. System low voltage protection.
c. Compressor overload protection.
d. Compressor over current protection.
e. IPM module protection

H. Electrical
1. The outdoor unit electrical power shall be 208/230 volts, 1-phase, 60 hertz.
2. The outdoor unit shall be capable of satisfactory operation within voltage limits of 187-253 volts.
3. The unit electrical power shall be a single point connection.
4. All power and control wiring must be installed per NEC and all local electrical codes.
5. Units shall have multiple terminal blocks to connect to multiple indoor units

2.04 4-WAY CEILING-RECESSED CASSETTE WITH GRILLE INDOOR UNIT

A. General
1. Indoor, direct-expansion, in-ceiling cassette fan coil. Unit shall be complete with cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing.
2. All units should have refrigerant lines that can be oriented to connect from the side of unit. Both refrigerant lines need to be insulated.

B. Unit Cabinet
1. Cabinet shall be constructed of zinc--coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Grille shall have hinges and can be opened to obtain access to the cleanable filters, indoor fan motor and control box.

C. Fan
1. Fan shall be centrifugal direct--drive blower type with air intake in the center of the unit and discharge at the perimeter. Automatic, motor--driven vertical air sweep shall be provided

standard. Automatic motor--driven louvers shall be provided standard and shall be adjustable for 2, 3 or 4-way discharge.
2. Air sweep operation shall be user selectable.

D. Motors
1. Motors shall be open drip-proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall be 3-speed.

E. Filter
1. Return air shall be filtered by means of a long-life washable filter.

F. Coil
1. Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion and especially golden hydrophilic pre−coated for enhanced wet-ability. A drip pan under the coil shall have a factory installed condensate pump and drain connection for hose attachment to remove condensate.

G. Controls
1. Controls shall consist of a microprocessor-based control system which shall control space temperature, determine optimum fan speed, and run self-diagnostics. The temperature control range shall be from 62°F to 86°F (17°C to 30°C) in increments of 1°F or 1°C, and have 46°F Heating Mode (Heating Setback). The wireless remote controller shall have the ability to act as the temperature sensing location for room comfort.
2. The unit shall have the following functions as a minmum;
   a. An automatic restart after power failure at the same operating conditions as at failure.
   b. A timer function to provide a minimum 24-hour timer cycle for system Auto Start/Stop.
   c. Temperature-sensing controls shall sense return air temperature.
   d. Indoor coil freeze protection.
   e. A wired remote or wireless infrared remote control or a wired control to enter set points and operating conditions.
   f. Automatic air sweep control to provide on or off activation of air sweep louvers.
   g. Dehumidification mode shall provide increased latent removal capability by modulating system operation and set point temperature.
   h. Fan-only operation to provide room air circulation when no cooling is required.
   i. Diagnostics shall provide continuous checks of unit operation and warn of possible malfunctions. Error messages shall be displayed at the unit.
   j. Fan speed control shall be user-selectable: high, medium, low, or microprocessor controlled automatic operation during all operating modes.
   k. Automatic heating-to-cooling changeover in heat pump mode. Control shall include deadband to prevent rapid mode cycling between heating and cooling.
   l. Indoor coil high temperature protection shall be provided to detect excessive indoor discharge temperature when unit is in heat pump mode
3. Provide wall mounted thermostat. Programmable wired controller shall maintain room temperature. Controller shall be allow mode setting, fan speed, scheduling, louver swing setting, error display, room temperture, etc. Carrier Model 40VM900003.
4. Provide control interface into existing building automation system.

H. Electrical

1. The unit electrical power shall be 208/230 volts, 1-phase, 60 hertz and are powered from the outdoor unit.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that required electrical services have been installed and are in the proper locations prior to starting installation.

B. Verify that condensate piping has been installed and is in the proper location prior to starting installation.

C. Notify Architect/Engineer if conditions for installation are unsatisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install refrigerant piping in accordance with equipment manufacturer's instructions.

C. Perform wiring in accordance with NFPA 70, National Electric Code (NEC).

D. Coordinate with installers of systems and equipment connecting to this system.

3.03 FIELD QUALITY CONTROL

A. Provide manufacturer's field representative to inspect installation prior to startup.

3.04 SYSTEM STARTUP

A. Provide manufacturer's authorized field representative to observe and approve system startup.

B. Prepare and start equipment and system in accordance with manufacturer's instructions and recommendations.

C. Adjust equipment for proper operation within manufacturer's published tolerances.

3.05 CLEANING

A. Clean exposed components of dirt, finger marks, and other disfigurements.

3.06 CLOSEOUT ACTIVITIES

A. Demonstrate proper operation of equipment to Owner's designated representative.

B. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Conduct walking tour of project.
   3. Briefly describe function, operation, and maintenance of each component.

C. Training: Train Owner's personnel on operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours of training.

3.07 PROTECTION

A. Protect installed components from subsequent construction operations.

B. Replace exposed components broken or otherwise damaged beyond repair.

END OF SECTION

SECTION 26 05 00
BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Basic Electrical Requirements and materials specifically applicable to Division 26 Sections, in addition to Division 1 - General Requirements. Section includes:
   1. Electrical Identification.
   2. Minor Demolition.
   3. Conductors and Devices.
   4. Raceways and Boxes.
   5. Supporting Devices.

1.03 REGULATORY REQUIREMENTS

A. Conform to NFPA 70 - National Electrical Code, latest edition with amendments as adopted by the City of Aurora, IL.

B. Conform to building codes as adopted by the City of Aurora, IL.

C. Install electrical Work in accordance with the NECA Standard of Installation.

1.04 DELIVERY, STORAGE AND HANDLING

A. Store and protect all materials as specified under the provisions of Section 01 60 00 and as specified herein.

B. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

C. Ship products to the job site in their original packaging. Receive and store products in a suitable manner to prevent damage or deterioration. Keep equipment upright at all times.

D. Investigate the spaces through which equipment must pass to reach its final destination. Coordinate with the manufacturer to arrange delivery at the proper stage of construction and to provide shipping splits where necessary.

1.05 PROJECT/SITE CONDITIONS

A. Install work in locations shown on Drawings, unless prevented by Project conditions. Drawings have omitted certain branch circuitry in areas for ease of reading. All branch circuitry is to be provided by Contractor.

B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission from Architect/Engineer before proceeding as specified under modification procedures.

1.06 QUALITY ASSURANCE

A. Provide Work as required for a complete and operational electrical installation.

B. All products shall be designed, manufactured, and tested in accordance with industry standards. Standards, organizations, and their abbreviations as used hereafter, include the following:
   1. American National Standards Institute, Inc (ANSI).
   2. American Society for Testing and Materials (ASTM).
   3. National Electrical Manufacturers Association (NEMA).
   4. Underwriters Laboratories, Inc. (UL).

C. Install all Work in accordance with the NECA Standard of Installation.

1.07 SUBMITTALS

A. Submit all requested items in Division 26 Sections under provisions of Section 01 30 00.

1.08 SUBSTITUTIONS

A. Substitutions will be considered only as allowed within the provisions of Section 01 60 00.

1.09 PROJECT RECORD DOCUMENTS

A. Cooperate and assist in the preparation of project record documents under the provisions of Section 01 78 00.

1.10 PROJECT MANAGEMENT AND COORDINATION

A. Proper project management and coordination is critical for a successful project. Manage and coordinate the Work with all other trades in accordance with Section 01 30 00 requirements. Reliance on the Drawings and Specifications only for exact project requirements is insufficient for proper coordination.

PART 2 PRODUCTS

2.01 WIRING METHODS

A. All locations: Building wire in raceway.

B. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.
   1. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 100 feet. Use minimum #10 AWG conductor wire in all the following locations:
      a. All emergency lighting and exit branch circuits.

2.02 WIRE AND CABLE

A. Manufacturers:
   1. Okonite.
   2. Southwire.
   3. Collyer.

B. Building Wire:

1. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation.
2. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, stranded conductor (solid for device terminations).
3. Control Circuits: Copper, stranded conductor, 600 volt insulation.
4. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet.
5. Use 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet.
6. Use conductor not smaller than 12 AWG for power and lighting circuits.
7. Use conductor not smaller than 16 AWG for control circuits.

C. Locations:
1. Concealed Dry Interior Locations: Use only building wire with Type THHN insulation in raceway.
2. Exposed Dry Interior Locations: Use only building wire with Type THHN insulation in raceway.
3. Above Accessible Ceilings: Use only building wire with Type THHN insulation in raceway.
4. Wet or Damp Interior Locations: Use only building wire with Type THWN insulation in raceway.
5. Exterior Locations: Use only building wire with Type XHHW insulation in raceway.
6. Underground Installations: Use only building wire with Type XHHW insulation in raceway.

2.03 WIRING DEVICES AND WALL PLATES

A. Single Pole Switch: Specification grade.
1. Hubbell Model 1121.
2. P & S Model 521.
3. Leviton Model 1121.
4. Color: Ivory.

B. Three-way Switch: Specification grade.
1. Hubbell Model 1123.
2. P & S Model 523.
3. Leviton Model 1123.
4. Color: Ivory.

C. Four-way Switch: Specification grade.
1. Hubbell Model 1124.
2. P & S Model 524.
3. Leviton Model 1124.
4. Color: Ivory.

D. Duplex Convenience Receptacle: Nema 5-20R, duplex, specification grade.
1. Hubbell.
2. Bryant.
3. Leviton.
4. Color: Ivory.

E. GFCI Receptacle: Nema 5-20R, duplex, GFCI, specification grade.
1. Hubbell Model GF-5362.
2. Slater Model SIR-20-F.

3. Eagle Model 647.
4. Color: Ivory.

F. Decorative Cover Plate:
1. Hubbell.
2. Bryant.
3. Leviton.
4. Description: Ivory, metal.

2.04 RACEWAY REQUIREMENTS

A. Use only specified raceway in the following locations:
1. Branch Circuits and Feeders:
a. Concealed Dry Interior Locations: Electrical metallic tubing.
b. Exposed Dry Interior Finished Locations: Electrical metallic tubing.
c. All other locations: Galvanized Rigid Metallic Conduit.

B. Size raceways for conductor type installed.
1. Minimum Size Conduit Homerun to Panelboard: 3/4-inch.

2.05 METALLIC CONDUIT AND FITTINGS

A. Conduit:
1. Rigid Steel Conduit: ANSI C80.1.
2. Electrical metallic tubing: ANSI C80.3.
3. Flexible Conduit: UL 1, zinc-coated steel.
a. Liquidtight Flexible Conduit: UL360. Fittings shall be specifically approved for use with this raceway.

B. Conduit Fittings:
1. Metal Fittings and Conduit Bodies: NEMA FB 1.
a. EMT fittings: Use set-screw indentor-type fittings.

2.06 CONDUIT HANGERS

A. Manufacturers:
1. Minerrallac Electric Company.
2. Substitutions: Or Approved Equal.

B. Description:
1. Standard conduit hanger, zinc-plated steel with bolts.
2. Threaded rod and hardware: Plated finish, size and length as required for loading and conditions.

2.07 BEAM CLAMPS

A. Manufacturers:
1. Appleton.
2. Midwest.
3. Raco.

B. Description: Malleable beam clamp, zinc plated steel.

2.08 ELECTRICAL BOXES

A. Manufacturers:
   1. Raco.
   2. Steel City.
   3. Appleton.
   4. Substitutions: Or Approved Equal.

B. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel, suitable for installation in masonry:

C. Equipment Support Boxes: Rated for weight of equipment supported; include 2 inch male fixture studs where required.

D. Wet Location Outlet Boxes: Cast aluminum: Cast alloy, deep type, gasket cover, threaded hubs.

2.09 ELECTRICAL FLOOR BOXES

A. Manufacturers:
   1. Hubbell.
   2. Appleton.
   3. Walker.

B. Concrete floor slab: Fully adjustable, stamped steel, 3" deep, two compartment (power/data), recessed flip top cover service box style floor box.

C. Provide surface mounted ("dog house" type) service fittings where called out on drawings.
   1. Service fitting shall:
      a. accept up to (2) 1" locking nipples.
      b. have interchangeable faceplates.

2.10 PENETRATION SEALANTS

A. Fire-rated assemblies: Provide firestopping of all penetrations made by Work under this Contract in accordance with provisions of Section 07 84 00 requirements.

B. Thermal and Moisture Protection: Provide thermal and moisture protection made by Work under this Contract of all exterior wall, floor and roof penetrations in accordance with Division 7 requirements.

2.11 TWO CELL LOW PROFILE SURFACE METALLIC RACEWAY

A. Manufacturer:
   1. Wiremold 2400 Series or equal.

B. Description: UL-5, 2 inches wide by 1 inch height, two channel galvanized steel, combination power/data.

C. Finish: Painted, ANSI 61 Color Selected by architect.

D. Accessories: Transition fittings, divider plates, device mounting straps, couplings, combination power/data cover plates, end plates and all other accessories necessary for a complete system in locations indicated on Drawings.

2.12 WIREWAY

A. Manufacturers:
   1. Hoffman.
   2. Cooper Industries.
   3. Approved Equal.

B. Description:
   1. NEMA Type 1 Lay-In Galvanized Wireway, UL 870. Flat cover design. Size as shown on drawings.
   2. Provide hinged covers where noted on drawings.
   3. Provide all elbows, tee's, covers and fittings as required

C. Finish:
   1. To be selected by Architect/Engineer.

2.13 MOTION SENSORS

A. Manufacturers:
   1. Leviton
   2. Hubbell
   3. Approved Equal

B. Combination Wall Switch/Occupancy Sensor
   1. Dual technology (passive infrared and ultrasonic), 277V sensor with 180 degree field-of-view and maximum coverage of 2400 square feet.
   2. Manual push button for ON/OFF light switching.
   3. Time delay settings: 30 seconds, 10, 20 or 30 minutes).
   4. Adjustable Integral blinders.
   5. Sensor shall continuously monitor space to identify usage patterns. Unit shall automatically adjust time delay and sensitivity settings for optimal performance and energy efficiency.

C. Ceiling Mounted.
   1. Dual technology (passive infrared and ultrasonic), 24VDC sensor with unobtrusive appearance and 360 degrees of coverage.
      a. Provide type/quantity of motion sensors to meet square foot coverage requirements.
   2. Provide power pack for 24VDC controls and switching of 120/277V circuits. Minimum quantity of sensors per power pack: 2.
   3. Sensor shall continuously monitor space to identify usage patterns. Unit shall automatically adjust time delay and sensitivity settings for optimal performance and energy efficiency.
   4. Time delay settings: Auto, fixed (5,10,15,20 or 30 minutes).
   5. Sensitivity settings: Auto, reduced sensitivity (passive infrared) variable (ultrasonic).
   6. (1) N/O and (1) N/C output.

2.14 NAMEPLATES AND LABELS

A. Nameplates: Engraved three-layer laminated plastic, black letters on white background.

B. Locations:
   1. Each electrical distribution and control equipment enclosure.

C. Letter Size:
   1. Use 1/8 inch letters for identifying individual equipment and loads.
   2. Use 1/4 inch letters for identifying grouped equipment and loads.

D. Labels: Embossed adhesive tape, with 3/16 inch white letters on a black background. Use only for identification of individual wall switches and receptacles and control device stations.

2.15 WIRE AND CABLE MARKERS

A. Manufacturers:
   1. Brady Model PCPS.
   2. Panduit Model PCM.
   3. T & B Model WM.

B. Description: Cloth type wire markers.

C. Locations: Each conductor at panelboard gutters, pull boxes, and each load connection.

D. Legend:
   1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.

2.16 CONDUIT MARKERS

A. Location: Furnish markers for each conduit longer than 6 feet.

B. Spacing: 20 feet on center.

C. Color:
   1. 208 Volt System: Black
   2. Fire Alarm System: Red.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Demolition Drawings are based on casual field observation and are intended to identify the limits of the construction site. Remove all electrical systems in their entirety in proper sequence with the Work.

B. Disconnect electrical systems in walls, floors, and ceilings for removal.

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 and Emergency Electrical Service: Maintain existing system in service. Disable system only to make switchovers and connections. Obtain permission from Owner and Architect at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Fire Alarm System: Maintain existing system in service. Disable system only to make switchovers and connections. Notify Owner, Architect/Engineer and local fire service at least 24

hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

F. Beginning of demolition means installer accepts existing conditions.

G. Verify that supporting surfaces are ready to receive work.

H. Electrical boxes are shown on Drawings, in approximate locations, unless dimensioned.

I. Degrease and clean surfaces to receive wire markers.

J. Verify that interior of building is physically protected from weather.

K. Verify that mechanical work which is likely to injure conductors has been completed.

L. Completely and thoroughly swab raceway system before installing conductors.

3.02 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove all existing electrical 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. Relocate existing fire alarm devices affected by wall, ceiling and floor demolition.

E. Repair adjacent construction and finishes damaged during demolition and extension work.

F. Properly dispose of all ballast to approved ballast recycler. Do not land fill ballasts.

3.03 APPLICATION

A. Install nameplate and label parallel to equipment lines.

B. Secure nameplate to equipment front using screws.

C. Secure nameplates to inside surface of door on panelboard that is recessed in finished locations.

D. Identify underground conduits using underground warning tape. Install one tape per trench at 3 inches below finished grade.

E. Neatly train and secure wiring inside boxes, equipment, and panelboards.

F. Use wire pulling lubricant for pulling 4 AWG and larger wires.

G. Route wire and cable as required to meet project conditions.
   1. Wire and cable routing indicated is approximate unless dimensioned.
   2. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

H. Pull all conductors into raceway at same time.

I. Protect exposed cable from damage.

J. Neatly train and lace wiring inside boxes, equipment and panelboards.

K. Support cables above accessible ceilings to keep them from resting on ceiling tiles.

L. Make splices, taps, and terminations to carry full ampacity of conductors without perceptible temperature rise.

M. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

N. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".

O. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.

P. Do not use powder-actuated anchors.

Q. Do not drill or cut structural members.

R. Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

S. Install surface-mounted cabinets and panelboards with minimum of four anchors.

T. In wet and damp locations use steel channel supports to stand cabinets and panelboards one inch off wall.

U. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

V. Terminate spare conductors with electrical tape.

W. Do not share neutral conductor on load side of dimmers.

X. Install wiring devices in accordance with manufacturer's instructions.
   1. Install wall switches at height shown on drawings, OFF position down.
   2. Install convenience receptacles at height shown on drawings grounding pole on bottom.
   3. Install specific purpose receptacles at heights shown on Drawings.

Y. Install wall plates flush and level.
   1. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
   2. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

END OF SECTION

SECTION 26 27 17
EQUIPMENT WIRING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical connections to equipment and devices not and integral part of the electrical distribution system.

1.02 RELATED REQUIREMENTS

A. Section 26 05 00 - Basic Electrical Requirements

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Provide conduit rough-in and electrical connection to powered equipment and devices identified in the Project Manual and on the Drawings. Refer specifally, but not limited to, these Specification Sections for further information:
   1. Section 21 13 00 - Fire-Suppression Sprinkler System.
   2. Section 23 81 28 - Variable Refrigerant Flow.
   3. Section 28 31 00 - Fire Detection and Alarm.

B. Coordination: Determine connection locations and requirements for furniture, equipment and devices furnished or provided under other sections.
   1. Do not rely solely on the Drawings and Project Manual for execution of the Work of this Section.
   2. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions.
   3. Include necessary field evaluation time to inspect connection requirements.
   4. Coordinate with other trades to determine exact rough-in requirements.

C. Sequencing:
   1. Install rough-in of electrical connections before installation of furniture and equipment is required.
   2. Make electrical connections before required start-up of equipment.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide wiring device manufacturer’s catalog information showing dimensions, configurations, and construction.

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.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 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 51 00
LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Exit signs.

1.02 RELATED REQUIREMENTS

A. Section 26 05 00 - Basic Electrical Requirements

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.

B. NECA/IESNA 501 - Recommended Practice for Installing Exterior Lighting Systems; National Electrical Contractors Association; 2006.

C. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; National Electrical Manufacturers Association; 2012.

D. UL 1598 - Luminaires; Current Edition, Including All Revisions.

E. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

F. IESNA LM-63 - ANSI Approved Standard File Format for Electronic Transfer of Photometric Data and Related Information; Illuminating Engineering Society; 2002 (Reaffirmed 2008).

G. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; National Electrical Contractors Association; 2006.

H. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; National Electrical Contractors Association; 2006.

I. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.

J. UL 1598 - Luminaires; Current Edition, Including All Revisions.

1.04 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 placement of poles and associated foundations with utilities, curbs, sidewalks, trees, walls, fences, striping, etc. installed under other sections or by others. Coordinate elevation to obtain specified foundation height.
3. 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.
4. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
5. Notify Architect/Engineer of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Provide photometric calculations where luminaires are proposed for substitution upon request.
   2. Indicate construction, installation and mounting details for products.
   3. Wiring Diagrams: Submit wiring diagrams for all exit sign, night light, self-contained back-up battery lighting, battery ballasts and associated circuit breakers, programmable circuit breakers and/or emergecy circuit breakers.

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.
   2. Lamps: Include rated life, color temperature, color rendering index (CRI), and initial and mean lumen output.
   3. Wiring diagrams: Provide wiring diagrams for dimmable drivers and dimmable switches.

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 01 60 00 - Product Requirements, for additional provisions.

G. Project Record Documents: Record actual connections and locations of luminaires and any associated remote components.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting) and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide three year manufacturer warranty for all LED luminaires, including drivers.

C. Provide five year pro-rata warranty for batteries for emergency lighting units.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as specified below.

B. Substitutions: See Section 01 60 00 - Product Requirements, except where individual luminaire types are designated with substitutions not permitted.

C. Type A: Recessed 2' x 4' LED.
   1. Products:
      a. Lithonia Lighting - 2ALL4-40L-EZ1-LP840.
      b. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Housing: Steel, painted white.
   3. Nominal Size: 2 by 4 feet.
   4. Air Function: Static (no air function).
   5. Ceiling Trim: NEMA type G (grid).
   6. Lamp(s): One-4000 lumen LED.
      a. Correlated Color Temperature: 4,000 K.
   7. Voltage: Universal 120-277 V.
   8. Driver(s): One 0-10V dimming.
   9. Mounting: Lay-in, grid ceiling.

D. Type EM: Emergency lighting unit.
   1. Products:
      a. Lithonia Lighting - ELM Series.
   2. Housing: Thermoplastic.
   3. Finish: White.

4. Mounting Type: Surface.
5. Battery: Nickel cadmium.
6. Voltage: Dual 120/277 V.

E. Type EX: Exit sign.
1. Products:
   a. Lithonia Lighting - EXR Series.
2. Lamps: LED.
3. Housing: Thermoplastic.
4. Finish: White.
5. Mounting Type: Universal.
6. Number of Faces: Single, with extra faceplate and color panel for field conversion to double-faced.
7. Letter Color: Red.
8. Voltage: Dual 120/277 V.

2.02 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. Provide products complying with Federal Energy Management Program (FEMP) requirements.

E. 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.

F. 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.

G. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

H. Recessed Luminaires:
1. Ceiling Compatibility: Comply with NEMA LE 4.
2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.

I. 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.

J. LED Luminaire Components: UL 8750 recognized or listed as applicable.

2.03 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.

F. Accessories:
   1. Provide compatible accessory mounting brackets where indicated or required to complete installation.
   2. Provide compatible accessory high impact polycarbonate vandal shields where indicated.
   3. Provide compatible accessory wire guards where indicated.
   4. Where indicated, provide emergency remote heads that are compatible with the emergency lighting unit they are connected to and suitable for the installed location.

2.04 EXIT SIGNS

A. All Exit Signs: Internally illuminated with LEDs unless otherwise indicated; complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
   1. Number of Faces: Single or double as indicated or as required for the installed location.
   2. Directional Arrows: As indicated or as required for the installed location.

B. Self-Powered Exit Signs:
   1. 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.
   2. Battery: Sealed maintenance-free nickel cadmium unless otherwise indicated.
   3. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
   4. Provide low-voltage disconnect to prevent battery damage from deep discharge.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as shown on the drawings.

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.

F. Examine substrate and supporting grids for luminaires.

G. Examine each fixture to determine suitability for lamps specified.

3.02 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.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 00 as required for installation of luminaires provided under this section.

B. Install products according to manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 1 (general workmanship), NECA 500 (commercial lighting), and NECA 502 (industrial lighting).

D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

E. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.

F. Install wall mounted luminaires, emergency units and exit signs at height as indicated on Drawings and directed in the field by Architect. Obtain final approval from Architect prior to commencement of this portion of work.

G. Install accessories furnished with each luminaire.

H. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

I. 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. Support luminaires larger than 2 foot by 4 foot size independent of ceiling framing.
   4. Secure surface-mounted and recessed luminaires to ceiling support channels or framing members or to building structure.
   5. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
   6. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

J. Recessed Luminaires:
   1. Install trims tight to mounting surface with no visible light leakage.
   2. Install recessed luminaires to permit removal from below.
   3. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.
   4. Install clips to secure recessed grid-supported luminaires in place.

K. Install accessories furnished with each luminaire.

L. Bond products and metal accessories to branch circuit equipment grounding conductor.

M. 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.

N. Exit Signs:
   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.

O. Install lamps in each luminaire.

P. Lamp Burn-In: Operate lamps at full output for prescribed period per manufacturer's recommendations prior to use with any dimming controls. Replace lamps that fail prematurely due to improper lamp burn-in.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - 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 and emergency lighting 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/Engineer.

F. Energy Code Commissioning: The electrical contractor shall program, test, calibrate and confirm the proper operation and plaement of all lighting controls in accordance with the International Energy Code, 2018 Edition Paragraph C408.3 "Lighting system functional testing".

3.05 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect/Engineer. 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/Engineer 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/Engineer or authority having jurisdiction.

D. Relamp luminaires which have failed lamps at completion of work.

3.06 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting) and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.

B. Demonstration: Demonstrate proper operation of luminaires to Architect/Engineer, and correct deficiencies or make adjustments as directed.

C. Just prior to Substantial Completion, replace all lamps that have failed.

D. Project record documents: Accurately record location of each luminaire.

3.08 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

SECTION 28 31 00
FIRE DETECTION AND ALARM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire alarm system design and installation, including all components, wiring, and conduit.

B. Replacement and removal of existing fire alarm system components, wiring, and conduit indicated.

1.02 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

C. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; 2002 (Cor 1, 2012).

D. NFPA 101 - Life Safety Code; 2015.

E. Provide all materials and labor in conformance with the following codes and standards:
   1. ANSI/NFPA 70 - National Electrical Code 2008 Edition as adopted and Amended by the City of Aurora, IL.
   2. IBC International Building Code, 2009 Edition, with local amendments.
   3. IECC International Energy Conservation Code, 2015 Edition with local amendments.
   4. International Fire Code, First Edition, 2009, with local amendments.
   5. NFPA 72 - National Fire Alarm Code ; 2008.
   6. Code for Safety to Life from Fire in Buildings and Structures (Life Safety Code, NFPA 101, 2003 edition).
   7. Automatic Fire Detectors, 2005 Edition (NFPA 72E).
   8. City of Aurora, Illinois Code of Ordinances.
   9. ADA-AG - American with Disabilities Act - Accessibility Guidelines.
   10. Illinois Accessibility Code, 1997 Edition (Illinois Administrative Code, Title 71, Chapter I, Subchapter b, Part 400).
   11. Underwriter's Laboratory.
   12. IEEE C62.41 - IEEE Recommended Practice on Surge Voltages in Low-Voltage Power Circuits; 1991 (R1995).

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Evidence of installer qualifications.

C. Evidence of maintenance contractor qualifications, if different from installer.

D. Inspection and Test Reports:
   1. Submit inspection and test plan prior to closeout demonstration.
   2. Submit documentation of satisfactory inspections and tests.
   3. Submit NFPA 72 "Inspection and Test Form," filled out.

E. Project Record Documents: See Section 01 78 00 for additional requirements; have one set available during closeout demonstration:
   1. "As installed" wiring and schematic diagrams, with final terminal identifications.

F. Closeout Documents:
   1. NFPA 72 "Record of Completion", filled out completely, as appropriate, and signed by installer and authorized representative of authority having jurisdiction.
   2. Submit written statement by installing contractor that the system has been installed and tested in accordance with approved plans, specifications and NFPA requirements.

1.04 QUALITY ASSURANCE

A. Designer: Qualified employee of fire alarm control panel manufacturer, Contractor, or installer , with experience designing fire alarm systems in the jurisdictional area of the authorities having jurisdiction.

B. Manufacturer: Qualified company specializing in smoke detection and fire alarm systems with five years documented experience.

C. Installer: Qualified firm with minimum 5 years documented experience installing fire alarm systems of the specified type and providing contract maintenance service as a regular part of their business.
   1. Authorized representative of control unit manufacturer; submit manufacturer's certification that installer is authorized; include name and title of manufacturer's representative making certification.
   2. Installer Personnel: At least 2 years of experience installing fire alarm systems.
   3. Supervisor: NICET level III or IV (3 or 4) certified fire alarm technician; furnish name and address.

D. Maintenance Contractor: Same entity as installer or different entity with specified qualifications.

E. Qualified personnel includes those persons that are:
   1. Factory trained and certified; OR
   2. NICET Level III or IV (3 or 4) Fire Alarm certified; OR
   3. International Municipal Signal Association Fire Alarm certified; OR
   4. Certified by state (Illinois Department of Professional Regulation); OR
   5. Trained, qualified, and employed by an organization listed by a national testing laboratory.

F. Preconstruction Conference: Conduct a preconstruction conference as Specified Under the Provisions of Section 01 30 00.

1.05 EXISTING CONDITIONS

A. The existing fire alarm system control panel is an Addressible System.
   1. The existing control panel will be modified and expanded to feed new devices as shown on the floor plans.
   2. Provide new equipment compatable with existing devices and system at site.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Initiating Devices, and Notification Appliances:
   1. Same manufacturer as control units.
   2. Provide all initiating devices and notification appliances made by the same manufacturer.

B. Substitutions: Not permitted.

2.02 FIRE ALARM SYSTEM

A. Fire Alarm System: Provide modifications and extensions to the existing automatic fire detection and alarm system:
   1. Provide all components necessary, regardless of whether shown in the contract documents or not.
   2. Protected Premises: Areas denoted on the drawings.
   3. Comply with the following; where requirements conflict, order of precedence of requirements is as listed:
      a. ADA Standards.
      b. The requirements of the State Fire Marshal.
      c. The requirements of the local authority having jurisdiction, which is City of Aurora, Illinois.
      d. Applicable local codes.
      e. The contract documents (drawings and specifications).
      f. NFPA 101.
      g. NFPA 72; where the word "should" is used consider that provision mandatory; where conflicts between requirements require deviation from NFPA 72, identify deviations clearly on design documents.
   4. Zoning: Point addressable system with initiating devices being individually zoned.
   5. Existing Control Panel: Make modifications to the existing panel to accommodate relocated or new devices.

B. Supervising Stations and Fire Department Connections:
   1. Existing connections to remain.

C. Circuits:
   1. Signaling Line Circuits (SLC) Within Single Building: Class B, Style 0.5.
   2. Notification Appliance Circuits (NAC): Class B, Style W.
   3. All cabling shall be plenum rated.

D. Spare Capacity:
   1. Signalling Line Circuits: Minimum 25 percent spare capacity.
   2. Notification Appliance Circuits: Minimum 25 percent spare capacity.
   3. Master Control Unit: Capable of handling all circuits utilized to capacity without requiring additional components other than plug-in control modules.

E. Power Sources: Existing to remain.

2.03 EXISTING COMPONENTS

A. Existing Fire Alarm System: Remove existing components indicated and incorporate remaining components into new system, under warranty as if they were new; do not take existing portions of system out of service until new portions are fully operational, tested, and connected to existing system.

B. Clearly label components that are "Not In Service."

C. Remove unused existing components and materials from site and dispose of properly.

2.04 COMPONENTS

A. General:
   1. Provide flush mounted units where installed in finish areas; in unfinished areas, surface mounted unit are acceptable.
   2. Provide legible, permanent labels for each control device, using identification used in operation and maintenance data.

B. Fire Alarm Power Supplies, Initiating Devices, and Notification Appliances: Analog, addressable type; listed by Underwriters Laboratories as suitable for the purpose intended.

C. Initiating Devices:
   1. Manual Pull Stations: Double action station, red finish. Addressable/Analog.
      a. Provide 1 extra.

D. Notification Appliances:
   1. Horn/Strobes: NFPA 72 and UL 1971; electronic horn rated 90 dBA average at 10 feet. Provide integral 110 candela strobe lamp and flasher. Provide red trim ring for semi-flush mounting. Synchronize strobes within site of each other. Compatible with control panel.
   2. Strobes: NFPA 72 and UL 1971; Provide integral 110 candela strobe lamp and flasher. Provide red trim ring for semi-flush mounting. Synchronize strobes within site of each other. Compatible with control panel.

E. Zone Module Interface:
   1. Single zone interface module shall provide an addressable input interface to the control panel for monitoring normally open contact devices. Mount inside NEMA 1 enclosure within 10 feet of first monitored device of zone. Compatible with control panel.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Field inspect existing fire alarm system installation to determine all required interface components necessary for fire alarm system replacement and relocation.

B. Perform repair work on existing system to eliminate trouble conditions.

3.02 INSTALLATION

A. Install in accordance with applicable codes, NFPA 72, NFPA 70, and the contract documents.

B. Install fire alarm system in accordance with manufacturer's instructions.

C. Conceal all wiring, conduit, boxes, and supports where installed in finished areas.

D. Obtain Owner's approval of locations of devices, before installation.

3.03 INSPECTION AND TESTING FOR COMPLETION

A. Perform field inspection and testing of fire alarm system in accordance with Section 01 78 00.

B. Notify Owner 7 days prior to beginning completion inspections and tests.

C. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.

D. Provide the services of the installer's supervisor or person with equivalent qualifications to supervise inspection and testing, correction, and adjustments.

E. Prepare for testing by ensuring that all work is complete and correct; perform preliminary tests as required.

F. Provide all tools, software, and supplies required to accomplish inspection and testing.

G. Perform inspection and testing in accordance with NFPA 72 and requirements of local authorities; document each inspection and test.
   1. Include description of testing and results in test report.

H. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

3.04 CLOSEOUT

A. Substantial Completion of the project cannot be achieved until inspection and testing is successful and:
   1. Final acceptance of the fire alarm system has been given by authorities having jurisdiction.

END OF SECTION