PROJECT MANUAL

FOR

MCKINLEY ELEMENTARY
CLASSROOM CASEWORK & GREASE INTERCEPTOR

Bid No: B8749

McKinley Elementary School
1610 SE 6th Street
Des Moines, Iowa 50315

Owner
Des Moines Independent Community School District
2100 Fleur Drive
Des Moines, Iowa 50321

Architect
Studio MELEE
139 4th Street
West Des Moines, Iowa 50265
ARCHITECT’S CERTIFICATION:
I hereby certify that the Specifications contained herein were prepared by me or under my direct supervision and responsible charge.
I am a duly Licensed Architect under the laws of the State of Iowa.

Curtis D. Ehler, AIA  License. No. 06548  Date 12/08/2021

ENGINEER’S CERTIFICATION:
I hereby certify that the Specifications contained herein were prepared by me or under my direct supervision and responsible charge.
I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Casey L. Adams, PE  License. No. 23175  Date 12/08/2021
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NOTICE IS HEREBY GIVEN: Sealed proposals will be received by the Capital Improvement Coordination Specialist of the Des Moines Independent Community School District at 1917 Dean Avenue, Des Moines, Iowa 50316 until three o'clock p.m. on the 20th day of January 2022, for the construction/repair and/or installation of the following improvement(s):

Bid No. B8749 McKinley Classroom Casework and Grease Interceptor

Commencing December 8, 2021 copies of the plans and specifications for the Project are on file with and available from Beeline and Blue 2507 Ingersoll Avenue, Des Moines, Iowa 50312. Plans may also be inspected at the following locations: Construction Update Internet plan room; F. W. Dodge Corporation scan services; or at the school district’s Operations Center 1917 Dean Avenue, Des Moines, Iowa 50316. Bids must be submitted on the approved bid form available in the plans and specifications. No oral, facsimile, telegraphic or telephonic bids or modifications will be considered.

Bidders will be required to provide a security deposit, in the form of an approved Bid Bond, cashiers or certified check, or certified share draft in the amount of five percent (5%) of the amount of each bid, in a separate attached envelope.

A Pre-Bid Conference will be held at 2:00 p.m., Wednesday December 15, 2021, at Operations Center, The Harper Room West, 1917 Dean Avenue, Des Moines, Iowa 50316.

Lump-sum bids will be received under one contract as described in the specifications. Bids will be opened and read aloud immediately after specified closing time for receiving bids. All interested parties are invited to attend.

Consideration of the bids received, and the award of contract or other action may be made by the Board of Directors of the Des Moines Independent Community School District upon the proposals received in accordance with the law and the plans and specifications at its meeting to be held at 6:00 p.m. on February 1, 2022 in the District Board Room at 1800 Grand Avenue Des Moines Iowa or at any other published and/or posted location of the Board meeting.

The Board of Directors may make the award to the lowest responsive, responsible bidder meeting specifications. The right is reserved to reject any or all bids, or any part thereof, and to waive informalities, and to enter into such contract or contracts as shall be deemed in the best interests of the Des Moines Independent Community School District.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor.

All bids will be governed by applicable provisions in the Iowa Code and Board Policies.

Shashank Aurora
Secretary of the Board
Des Moines Independent Community School District
PART 1 - GENERAL

Des Moines Independent Community School District, State of Iowa, hereinafter called the “Owner,” has advertised for bids to be submitted for the construction work specified in the advertisement. Proposals to be entitled to consideration shall be in accordance with the following:

1.1 DEFINITIONS

A. Bids are sums stipulated in Proposals for which Bidders propose to perform the Work.
B. Unit Prices are sums included in Proposals as Bids per unit measure of materials and/or services, as required in the Bidding Documents.
C. Proposals are complete, properly executed forms including all information requested by the Owner.
D. Bidders are qualified contractors who submit Proposals to the Owner for Work as Prime Contractors on the Project.
E. Alternate Prices are lump sum prices included in the Proposals for labor, materials and/or services that are not included in the base bid.

1.2 EXAMINATION OF SITE and DOCUMENTS

Each Bidder shall visit the site of the proposed work and shall completely inform himself relative to construction hazards, procedure, labor, and all other conditions and factors, local and otherwise, which would affect prosecution and completion of the work and its cost. All visits to the site shall be coordinated through the Owner’s Representative. Such considerations shall include, without limitations, the arrangement and condition of existing structures and facilities; the procedure necessary for maintenance of uninterrupted, safe operation, use and occupancy of existing facilities; the availability and cost of labor; and facilities for transportation, handling and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the bid. Each bidder shall so fully examine the plans and specifications and acquaint himself with their requirements and with the conditions surrounding the construction on the site that he shall be fully familiar with and informed of all facilities, difficulties, and problems associated with or which might be incurred in the prosecution of the work. In case of disagreement between drawings and specifications or within either document itself, the better quality or greater quantity of work shall be figured in the bid (see GC. 6.04). It shall be the responsibility of the Bidder to direct the attention of the Architect and Owner in writing and at least seventy-two (72) hours prior to the time set for the opening of the bids, any seeming inconsistencies, ambiguous requirements, omissions, or any other matter which seems to require explanation, and to request clarification. The submission of a bid shall be taken as prima facie evidence of compliance with this requirement and as an acknowledgment that the Bidder has received all the required documents and has visited the site. There will be no subsequent financial adjustment for lack of such prior information.

1.3. INTERPRETATION

No oral interpretations will be made by anyone to any Bidder as to the true meaning or requirements of any part of the drawings, specifications or other proposed Contract Documents. Every request for an interpretation shall be made in writing and addressed and forwarded to the Owner’s Representative not later than seven (7) calendar days before the date fixed for opening of bids. The person submitting the request shall be responsible for its prompt delivery. Every interpretation made to a Bidder will be in the form of an addendum to the Contract Documents, which, if issued, will be sent as promptly as is practicable to all persons to whom the drawings, specifications, and other proposed Contract Documents
have been issued. All such addenda shall become part of the Contract Documents and their receipt shall be acknowledged in the Bid Proposal. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

1.4 PROPOSAL FORMS

Proposal forms included in the specification may be copied and used for submitting proposals. Proposals shall be made upon the forms provided therefore. Refer to Document 00311 Proposal Form Instructions, and Document 00311 Proposal Form. Any Proposal NOT submitted on required forms may be rejected.

Attention is directed to the fact that the Contract Documents contain one complete set of bidding and contract forms; these are sample forms included for the information of Bidders. They are not to be detached from the Contract Documents, filled out or executed.

Special attention is directed to the Form of Bid Bond (Document 00410) included in the bidding documents. Additional copies of this form may be secured from the Owner’s Representative, but the use of this particular form is not mandatory. Any similar standard form of a recognized responsible surety which contains the same stipulations and guarantees, the same execution of the contract and indemnification of the Owner in case of default, will be acceptable.

1.5 PREPARATION OF PROPOSAL FORMS

All proposal forms must be prepared in single copy and in conformity with and be based upon and submitted subject to all requirements of the Contract Documents. They must be fully completed with all blanks appropriately filled in. Each bid shall be legibly written or printed in ink on the separate form provided. No alterations in bids, or in the printed forms therefore, by erasures, interpolations, or otherwise will be acceptable unless each such alteration is signed or initialed by the Bidder; if initialed, the Owner may require the Bidder to identify any alteration so initialed. No alteration in any bid, or in the form on which it is submitted, shall be made after the bid has been submitted.

It will be the Bidder’s responsibility to secure any and all addenda from the Architect. The Bidder will be required to acknowledge receipt of all addenda. Owner reserves the right to reject any bid which is received which has not been based upon all addenda issued by the Architect.

No Bidder may submit more than one bid. Multiple bids under different names will not be accepted from one firm or association.

The Bidder is required to bid on all alternates and complete all blanks on the bid form. If alternates are called for on a type or method of construction as to which the Bidder does not desire to bid, the Bidder shall insert the words “NO BID.” In case the Bidder desires to bid on an alternate, it shall set forth in the space provided therefore, the amount to be added or deducted from the base bid or in the event that the Bidder does not desire to make a change from the base bid, it shall so indicate by using the words “NO CHANGE.” In the selection of alternates, the Owner reserves the right to select or reject any or all alternates in the proposal if, in the judgment of the Board of Directors, or its designees, the best interest of the School District will be so served.

1.6 BID PERFORMANCE GUARANTIES

Bid security (single copy) in the form of a certified or cashier’s check, certified share draft, money or surety bond in the amount of at least five (5%) percent of the bid price, payable without condition or qualification to Des Moines Independent Community School District, shall accompany each bid in the OUTER envelope, as evidence of good faith and as a guarantee that if awarded the contract, the Bidder
will execute the Contract and give bond as required. The Bidder assumes all responsibility for furnishing acceptable bid security.

Bid security in the form of a bond (see Document 00410) will be accepted only if from a regularly established firm licensed to write such surety in the State of Iowa.

The bid security of each unsuccessful Bidder will be returned when the Construction Agreement is fully executed. The bid security will be voided but retained by the Owner, if, after the Notice of Contract Award, the Bidder shall enter into a Contract and file a satisfactory performance bond, labor and material payment bond, and certificates of required insurance, all within ten (10) calendar days after the date such notice is given by the Owner. The bid security of the second and third lowest responsible Bidders may be retained for not to exceed forty-five (45) days after opening, pending the execution of the Construction Agreement and submission of bond by the successful Bidder.

This bid security may be retained by the Owner as liquidated damages, if the bid is accepted and a contract thereon is awarded but the successful Bidder fails to enter into a contract in the form prescribed with legally responsible sureties, within ten (10) calendar days after date of Notice of Contract Award is given by the Owner.

The Owner shall require the Bidder to whom a Contract is awarded to furnish to the Owner both Performance and Labor and Material Payment bonds in the amount of one hundred (100%) percent of the Contract price, covering the faithful performance of the Contract and the payment of all obligations arising thereunder, and the Bidder will further provide warranties as required by the specifications or General Conditions.

The bonds shall be executed on the forms included with the Contract Documents (forms shall not be removed from the Contract Documents; Bidders may use copies of the bond forms included in the specifications). Accompanying each bond form shall be a “Power of Attorney” authorizing the attorney in fact to bind the surety company and certified to include the date of the bond.

1.7 LIST OF SUBCONTRACTORS AND SUPPLIERS OF LABOR AND MATERIAL

The lowest bidder for each contract shall, within twenty-four (24) hours following the bid opening, provide the Owner with the signed List of Subcontractors and Suppliers of Labor and Material on the form provided in Section 00100 Instructions to Bidders. Subcontractor is any entity performing 1-1/2% or more of the contract value. The List shall detail the quotations used in the preparation of the bid and whose services are proposed to be used in construction of the project. The List must be complete showing all sections in the Construction Documents. Failure to submit the List may preclude the bid from further consideration by the Owner. The Owner reserves the right to either disclose or not disclose the List of the successful Bidder.

Each Bidder shall identify and fully disclose on the List all those subcontractors and suppliers proposed for the work with which the Bidder is connected either directly or indirectly as part owner, participant in profits and losses or in any other manner financially or economically.

1.8 BACKGROUND INFORMATION

The lowest bidder for each contract shall, within twenty-four (24) hours following the bid opening, provide the Owner with the Background Information included in Section 00100 Instructions to Bidders. The Contractor must complete and fully disclose all information requested in the Background Information. Failure to submit the Background Information may preclude the bid from further consideration by the Owner.
The Owner may make such investigations as deemed necessary to determine the ability and qualification of the Bidder. Bidders shall submit within twenty-four (24) hours, if requested by the Owner, such evidence of the Bidder's competency and practical knowledge to do the particular work covered by his proposal and of the Bidder's financial responsibility, resources, experience, organization and equipment to complete the proposed work. Failure to comply with this requirement may result in the rejection of consideration of such bid.

In determining the Bidder’s qualifications, the following factors, among others, will be considered: work previously completed by the Bidder; the qualifications of the proposed subcontractors for their work; Bidder references; and whether the Bidder (a) maintains a permanent place of business; (b) has adequate plant and equipment to do the work properly and expeditiously; (c) has the financial resources to meet all obligations incident to the work; (d) has appropriate technical experience; and (e) has adequate, competent, experienced staff and supervisors who will be committed to the work until completion.

Each Bidder may be required to show that he has handled former work and that no just claims have been prosecuted or are pending against such work. No bid will be accepted from a Bidder who is engaged on any work which would impair his ability to perform or finance this work or other work in progress.

The Owner reserves the right to reject any bid if the Owner determines, in its sole and absolute discretion, that the Bidder is not properly qualified to carry out the obligations of the Contract and/or to complete the work contemplated by the contract. Conditional bids will not be accepted.

1.9 PERMITS AND FEES

The School District shall secure and pay for the general building permit. Trade contractors will be responsible to obtain and pay for their specialty permits. The Owner is exempt from paying certain fees and it will be the contractor’s responsibility to acquaint himself with the laws and regulations governing said fees. Attention is directed to the requirements of the General Conditions regarding obtaining permits. The contractor shall obtain and pay for all fees associated with work in the Department of Transportation right of way.

1.10 TAXES

Sales and use taxes shall be excluded from the bid for all items incorporated into the final project. The Owner will provide sales tax exemption certificates as appropriate. See section 00700 General Conditions paragraph 12.04 for additional requirements.

1.11 SIGNATURE OF BIDDERS

Each Bidder shall sign and notarize the bid form, on the last page of the form and the bid bond. If the Bidder is an individual, the Bidder must sign in individual capacity. Bids by partnerships shall be signed with the partnership name followed by the signature and designation of one of the partners or other authorized representative. Bids by corporations shall be signed with the name of the corporation followed by the signature and designation of the president or other person authorized to bind the corporation and attested to by the secretary with corporate seal (if available). Bids by joint ventures shall be signed by each participant in the joint venture or by an authorized agent of each participant. The names of all persons signing should also be typed or printed below the signature. A bid by a person who affixes to his signature the word “president,” “secretary,” “agent,” or other designation without disclosing his principal may be held to be the bid of the individual signing. When requested by the Owner, evidence of the authority of the person signing shall be furnished.
1.12 SUBMISSION OF BIDS

Bid Documents shall be enclosed in two envelopes (OUTER and INNER), each of which shall be sealed and clearly labeled “BID DOCUMENTS” and identified with the description of the work to which the proposal applies; the name of the project; the name and address of the Bidder; and the time of opening bids; all in prominent lettering so as to guard against opening prior to the stipulated time. The INNER envelope shall include the form of proposal (Document 00311) and Shall be marked “BID ENCLOSED”. The “OUTER envelope” shall include the Bid Bond (Document 00410)), along with the INNER envelope. If the OUTER envelope does NOT include the required document, the INNER “BID ENCLOSED” envelope will NOT be opened. No responsibility shall attach to any employee of the Owner for the premature opening of any bid not prominently identified. The Bidder shall be responsible for placing his firm name and the name and number, if applicable, of the project and the time of the bidding on the outside of such bid envelope.

The Bid Documents shall be submitted at the time and location as noted in the Invitation to Bid. Bids received after the specified time of closing will be returned unopened.

1.13 WITHDRAWAL OF BIDS

Any Bidder may withdraw his bid if written request for withdrawal signed in the same manner and by the same person who signed the Bid Form is received by the individual of the School District requesting the bids prior to the time established for the opening of the bids.

No Bidder may withdraw his bid for forty-five (45) days after the scheduled time set for the opening thereof, or before award of the Contract, unless said award is delayed for a period exceeding forty-five (45) calendar days.

1.14 MODIFICATIONS

No oral, telephonic, or telegraphic modifications will be considered.

1.15 ACCEPTANCE OF BIDS

The Owner reserves the right to accept the bid which in its judgment is the most responsive responsible and best bid or to reject any and all bids and alternatives and to waive or disregard irregularities or informalities in any bid as it may deem to be in the best interest of the School District. The Board of Directors or its designees may consider as irregular any bid on which there is an alteration of, or departure from, the bid form. All proposals received after the specified time of closing shall be returned unopened.

Final determination of compliance with specifications will rest with the Owner.

1.16 APPLICABLE LAWS AND REGULATIONS

Each Bidder shall familiarize himself with all state and local laws, codes, ordinances, and regulations which might in any manner affect the work to be done; the materials to be supplied; the taxes, permits and fees to be paid; or the labor to be employed in and about the work. Any claim of misunderstanding or ignorance on the part of any successful Bidder will not in any way excuse such Bidder from the necessity of full compliance with every such law, code, ordinance, or regulation. All state laws, codes and regulations and local ordinances, which are applicable, shall be complied with including but not limited to those specified in these documents.
1.17 INSURANCE
Throughout the life of the contract, the Contractor will be required to carry the types and amounts of insurance named in the General Conditions.

1.18 CONTRACTOR’S LICENSE
Any successful Bidder may be required by the Owner to obtain the necessary and applicable Contractor’s License from all appropriate governmental authorities and if required, shall not allow any subcontractor to commence work on his subcontract until all similar provisions required of the subcontractor have been obtained and approved.

1.19 POST-BID INTERVIEWS
Bidders in contention for contract awards may be asked to attend Post-Bid Interviews, submit Post-Bid Submittals in rough draft for review. (See Document 00500.)
BACKGROUND INFORMATION

All questions must be answered, and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information.

1. When Organized

2. If Corporation, Where Incorporated

3. How many years have you been engaged in the contracting business under your present firm or trade name?

4. List all of the surety/bonding companies you have utilized in the last five (5) years

5. Have you ever been declared in default under a performance bond in the last five (5) years? If so, describe the circumstances and which surety/bonding company was involved. Include the name and contact person of the owner(s).

6. Have you ever been previously found to be a non-responsive or non-responsible bidder under Iowa Code Chapter 26, Iowa Code Section 73A or other applicable law or governing authority? If yes, please describe the circumstances.

7. Are you currently being investigated for or previously been found to have violated in the last five years any of the following state or federal laws: Iowa Minimum Wage Act, Iowa Non-English Speaking Employees Act, Iowa Child Labor Act, Iowa Labor Commissioner’s Right to Inspect Premises, Iowa Compensation Insurance Act, Employment Security Act, Iowa Competition Act, Iowa Income, Corporate and Sales Tax Code, a ‘willful’ violation of the Iowa or Federal Occupational Safety and Health Act, Iowa Employee Registration Requirements, Iowa Hazardous Chemical Risks Act, Iowa Wage Payment Collection Act, Federal Income and Corporate Tax Code, The National Labor Relations Act, The Drug-Free Workplace Act, The Employee Retirement Insurance Security Act, The Fair Labor Standards Act) Yes No If yes, please explain:

8. Do you currently have any legal action pending which could impact your ability to perform this Project? If yes, please explain:
No actions will be made on the basis of answers to the above questions without an inquiry and an opportunity to be heard regarding the circumstances of the matters reported.

The undersigned hereby authorizes and requests any person, firm or corporation to furnish any credit history and financial condition or other information required by the District in verification of the recitals comprising this statement of Background Information. The undersigned further authorizes the District to conduct any and all necessary investigations of the undersigned's federal and state Occupational Safety and Health Act (OSHA) Compliance, including access to State and Federal records.

I hereby certify that the above information is true and correct to the best of my knowledge and that the District may rely on the information provided.

THIS STATEMENT MUST BE NOTARIZED.

NAME OF CONTRACTOR: ____________________________________________________________

BY: ________________________________________________________________

Signature                                           Title

______________________________________________________________

Type/Print Name                                           Date

STATE OF IOWA, ___________________ COUNTY, ss:

Subscribed and sworn to before me by the said ________________________ on this ___ day of ___
_______________________, 20_.

______________________________________________________________

Notary Public in and for the State of Iowa
LIST OF SUBCONTRACTORS AND SUPPLIERS OF LABOR AND MATERIAL

PROJECT: ___________________________ CONTRACTOR NAME: ___________________________

Pursuant to the provisions set forth in the Instructions to Bidders, The General Conditions, and the Proposal Form, the above-named contractor hereby designates below the names and locations of the place of business of each subcontractor. District may request subcontractor license number.

<table>
<thead>
<tr>
<th>SUBCONTRACTOR</th>
<th>BUSINESS ADDRESS</th>
<th>WORK TO BE DONE</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Comments:_________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

END OF DOCUMENT
PART 1 - GENERAL

1.1 TIME OF COMPLETION

A. It is to be understood that time is of the essence for this Contract and the Contractor will be required to perform the Work within the allowable time set forth in the Contract. In this connection, attention is directed to the provisions of the General Conditions and Supplementary General Conditions, if any, relative to delays, extensions of time, and liquidated damages. The successful bidder/contractor shall, within ten (10) days after the Notice of Contract Award, prepare and submit for the Owner’s approval, a Preliminary Construction Schedule. The schedule shall indicate the time of performance and the completion dates of the various portions of the Work, and the dates upon which the Owner may expect to be allowed to occupy all or portions of the Project.

B. The Owner and the Contractor shall agree mutually on any changes in either the schedule or the rate of performance of the Work which might either favorably or adversely affect such schedule dates. No additional compensation or fee shall be paid by the Owner, for any completion of all or any portions of the Work earlier than scheduled unless otherwise specifically noted in Bid Documents.

1.2 PRELIMINARY CONSTRUCTION SCHEDULE

A. The Preliminary Construction Schedule indicates planned Substantial Completion dates for significant activities during the construction period. Substantial Completion of an activity is considered to be when the work of subsequent activities can proceed in accordance with the Project Construction Schedule.

1.3 CONSTRUCTION PROGRESS SCHEDULE

A. A detailed Construction Progress Schedule shall be submitted by the Contractor prior to the submission of the first request for payment. No partial payment on account of work performed shall be made until such detailed Construction Progress Schedule has been approved by the Owner. Refer to Section 01310 for format requirements. Construction sequence or timing of schedules received from contractors may be adjusted in the Project Construction Progress Schedule by the Owner’s Representative to facilitate sequencing and coordination of the overall Project.

B. During the construction period the Contractor is required to regularly provide information and input on scheduling and coordination of his work. The Construction Progress Schedule will detail the Contractor’s performance between Project milestone dates. Construction Progress Schedules will be required with each Contractor’s Application for Payment.

C. The mandatory Project milestones are listed in this section.

PROJECT MILESTONES

A. Bids Due: January 20, 2022
B. Notice of Award: January 21, 2022
C. Construction Start: June 6, 2022
D. Substantial Completion: August 12, 2022
E. Final Completion: October 28, 2022
F. Definitions:

1. Construction Start date: Established date on which the Contractor shall actively begin the Work on site to be completed under this contract. The construction start date may be amended to permit the Contractor to begin work sooner than established herein, upon approval of the Owner.

2. Substantial Completion date: Established date on which the Work, or designated portion(s) thereof, has been sufficiently completed in accordance with the Contract Documents so as to permit the owner to safely and legally occupy or utilize the Work for its intended use, subject only to minor punch list items the absence of completion which does not interfere with the Owner’s intended use of the project.

3. Final Completion date: Established date on which all outstanding items of the Work - including activities established in the Contract Documents, punch lists and established closeout documentation – have been fully executed and submitted to the Owner.

1.5 LIQUIDATED DAMAGES

A. Substantial Completion The Owner and the Contractor agree that this Agreement shall not provide for the imposition of liquidated damages based on the date of Substantial Completion.

1. The contractor understands that if the date of Substantial Completion established by this Agreement (as may be amended by subsequent approved changes) is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The contractor agrees that if the Date of Substantial Completion is not attained, the Contractor shall pay the Owner actual damages, as determined by actual Owner expenses, to provide for the Project’s intended purpose after the established date of Substantial Completion, up to the date of actual Substantial Completion.

B. Final Completion The Owner and the Contractor agree that this agreement shall not provide for the imposition of liquidated damages based on the Date of Final Completion.

1. The Owner, at its election, may choose to execute the completion of outstanding punch list items remaining after the established date of Final Completion. All costs incurred by the Owner for Work completed after the Final Completion date will be deducted from the final payment owed to the contractor.

1.6 PHASING PLAN

The following general phasing concept has been developed in order to provide the Contractor with an overall concept of how the phasing will be required for work on this Project. The District will work with the General Contractor, awarded the Project, to define the final detailed schedule of when work will occur.
GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL INCLUDE THE NECESSARY PROJECT MANAGEMENT, LABOR, OVERTIME OR DOUBLE SHIFT REQUIREMENTS TO MEET THE PROJECT’S SUBSTANTIAL COMPLETION DATE. WITHIN LIMITATIONS NOTED BELOW, THE BUILDING IS AVAILABLE 24/7 STARTING ON JUNE 6TH, 2022.

General notes:

- Work to be coordinated through the Owner’s representative.

- Work can be done on all days between the start of construction and substantial completion. However, staff and students may be present on-site during this time. Contractor to coordinate with owner to schedule construction to work around staff and student activities. Staff and student scheduled activities are not anticipated to interfere with contractor’s access to jobsite.

- Any work that would produce dust, debris, noise or vibrations that would adversely impact the adjacent classrooms shall be done during non-class hours or non-school days.

- All hauling of equipment and materials in/out and debris removal must ensure the safety of the students, staff, and visitors. Station personnel at areas of conflict when material or equipment is transferred in and out.

- The contractor may utilize the school parking lot during the summer break.

- All existing utility and communication services and distribution systems shall remain active during this work. Should a system be affected due to this work, the contractor shall make any required repairs to the system affected. Systems to maintain include in part: cooling systems, heating and ventilating, plumbing, electrical, temperature controls, fire alarm, security, intercoms, data / communications, and clock systems.

- Temporary security barriers and interior construction barriers shall be installed to separate the school and public from the work areas when rooms with work cannot be secured. All partitions shall be constructed per Section 01500 and shall be from floor to structure above. Maintain and remove the partitions when no longer required. Patch adjacent surfaces as required.

- Emergency exiting as required by the City of Des Moines code officials must be kept available while work continues for the renovation. The contractor shall phase the work around the exits to maintain a level unobstructed path of travel at all times to the public right of way.

- Construction Start: June 6, 2022 – Based upon no lost days of student instruction due to snow or other uncontrollable events. Start of work is required to be adjusted accordingly.

- Close Out: Completion of Closeout Documents and punch list. – August 12, 2022 – October 28, 2022. All punch list work shall occur after school hours.

END OF DOCUMENT
PART 1 - GENERAL

1.1 INFORMATION AVAILABLE TO BIDDERS

The following reports are available to bidders for information:

A. Abatement report available by request.

B. The Contractor is hereby notified that some or all of the buildings covered by this Construction Agreement may contain lead-based paint. Some or all of the buildings covered by this Construction Agreement may be considered child occupied facilities as that term is used by the United States Environmental Protection Agency ("EPA") and the Iowa Department of Public Health ("IDPH"). Starting April 2010, federal and state law will require contractors that disturb lead-based paint in homes, child care facilities and schools, built before 1978 to be certified and follow specific practices to prevent lead contamination. Further information regarding these requirements is available on the Iowa Department of Public Health website.

The Contractor is solely and fully responsible for the compliance with all applicable law and regulations regarding lead-based paint, including but not limited to those of EPA, IDPH and OSHA.

1.2 USE OF INFORMATION

A. All these documents made available by the Owner are for information only and are not a warranty of existing conditions.

B. Bidders may purchase a copy at cost of reproduction.

C. The data contained in the above items have been utilized in the preparation of construction documents. The Contractor may rely on the accuracy of the technical data contained in the report, but not upon non-technical data, interpretations or opinions contained therein, or for the completeness thereof for the Contractor's purposes.

D. Except as indicated in the preceding paragraph, Contractor has full responsibility with respect to subsurface conditions at the site.

END OF DOCUMENT
PART 1 - GENERAL

1.1 PROPOSAL FORMS

A. Bidders are required to use the Proposal Form provided in Document 00311 or submit bid on the DMPS electronic portal. Contact the DMPS Senior Supply Chain Analyst at 515-242-7649 to become registered to submit a bid electronically. Additional proposal forms may be copied from this manual or obtained from the Owner’s Representative.

PART 2 - PROPOSAL FORMAT

2.1 BID PROPOSALS

A. The Proposal consists of all the following required documents:

1. Proposal Form (Document 00311) Inner Envelope.


B. Bid documents shall be enclosed in two envelopes (OUTER and INNER), each of which shall be sealed and clearly labeled “BID DOCUMENTS” and identified with the name and Bid Number of the project; the name and address of the Bidder; and the time or opening bids. The INNER envelope shall contain the Bid Proposal. The OUTER envelope shall contain the Bid Bond and INNER envelope. If all supporting documents are not included, the inner envelope will not be opened.

All information shall be in prominent lettering so as to guard against opening prior to the stipulated time. No responsibility shall attach to any employee of the Owner for the premature opening of any bid not prominently identified. The Bidder shall be responsible for placing his firm name and number, if applicable, of the project and the time of the bidding on the outside of such bid envelope.

C. All spaces provided on the Proposal Forms shall be filled in. If any space provided is not utilized by the Bidder, that space shall be filled in with the notation "NA" (Not Applicable).

D. The Proposal Forms shall be typewritten or manually printed in ink.

E. Where indicated, all amounts shall be expressed in words and in figures. In case of discrepancy, the words shall govern.

F. Bidders shall not make unsolicited notations or statements on the Proposal Forms. Alteration of the Proposal Forms is not permitted and may result in the proposal being considered non-responsive.

G. The person who signs the Proposal shall initial all changes to and erasures of the Bidder’s entries on the Proposal Forms.

H. Each Proposal shall include the legal name of the Bidder and a statement regarding whether the Bidder is a sole proprietor, a partnership, a corporation, or other type of legal entity. Proposals submitted by corporations shall have the state of incorporation noted. Any Bid submitted by an agent shall have a current Power of Attorney attached, certifying the agent’s power to bind the Bidder.

PART 3 - COMPLETION OF PROPOSAL FORMS

3.1 PROPOSAL FORM (DOCUMENT 00311)

A. Submit only one Proposal Form. Copies of the Proposal Form may be made.
B. Fill in the numbers and dates of all Addenda received and considered in the Proposal. Proposals must include acknowledgement of all Addenda issued prior to the Bid Date.

C. Type or print the signer’s name and title in the spaces provided below the signature.

D. Date the Form in the spaces provided.

E. Place the Contractor’s name at the bottom of each page in the space provided.

F. Have the Bid Proposal Notarized.

G. Completed Proposal form to be included in the INNER envelope.

3.2 TSB (Targeted Small Business Participation) FORM (DOCUMENT 00312)

Indicate participation on bid form. Low bidder to provide participation documents along with 24 HR information.

A. Program Description

1. In accordance with the Code of Iowa, Articles 73.15 through 73.21 and as amended by Sec. 223 of House File 479, the Board of Education of the Des Moines Independent Community School District seeks to provide opportunities for Iowa Targeted Small Businesses in the award of all contracts. The Certified Iowa Targeted Small Business participation target is ten percent (10%) of the base bid.

B. Definitions

1. Targeted Small Business (TSB) means a small business which is fifty-one percent or more owned, operated, and actively managed by one or more women or minority persons. Certified in the above context means the TSB has been certified by the Iowa Department of Inspections and Appeals. A complete listing of all certified TSB’s may be secured from the Iowa Department of Economic Development (515) 242-4700.

2. Small business means any enterprise located in this state which is operated for profit under a single management, and which has an annual gross income of less than three million dollars computed as the average of the three preceding fiscal years.

3. Minority person(s) means an individual who is Black, Hispanic, Asian or Pacific Islander, American Indian or Alaskan native.

4. Actively managed means exercising the power to make policy decisions affecting the business.

5. Operated means actively involved in the day-to-day management of the business.

C. Performance and Payment Bond Waiver

1. If Contractor is a TSB, the contractor may be eligible to receive a waiver of the performance and payment bond requirements pursuant to the provisions of the Iowa Satisfaction and Performance Bond Program, Section 12.44 of the Code of Iowa.

2. Certification of eligibility to participate in the Iowa Satisfaction and Performance Bond Program is determined by the Iowa Department of Inspection and Appeals.
D. Documentation

To document that a good faith effort has been made to meet the TSB participation goal, each prime bidder shall submit with their bid an executed copy of this form, completely filled out. Make additional copies of the form as required.

E. Place the Contractor's name at the bottom of each page in the space provided.

F. Date the Form in the spaces provided.

G. Completed TSB form Page 1 must be signed and notarized by the person signing the Proposal Form.

H. Completed TSB forms to be included with the 24 hr. information.

3.3 NON-COLLUSION AFFIDAVIT (DOCUMENT 00313)

By signing bid form, bidder acknowledges non-collusion.

A. Submit the Non-Collusion Affidavit on the form provided. Copies may be made.

B. Type or print the signer's name and title in the spaces provided.

C. Place the Contractor's name at the bottom of the page in the space provided.

D. Have the Non-Collusion Affidavit Notarized.

E. Completed Non-Collusion Affidavit to be included by low bidder with the 24 hr. information.

3.4 BIDDERS STATUS FORM (DOCUMENT 00314)

Indicate on bid form, bidders residency status.

A. Submit the fully completed Bidders Status Form on the form provided. Copies may be made.

B. Place the Contractor's name at the bottom of the page in the space provided.

C. Sign and date the Form in the space provided.

D. Completed Bidders Status Form to be included by low bidder along with the 24 hr. information.

3.5 PERSONNEL ACKNOWLEDGEMENT AND CERTIFICATION (DOCUMENT 00315)

By signing, bidder acknowledges commitment to compliance with all applicable rules, regulations, and restrictions regarding the employment of personnel as defined therein.

A. Submit an executed copy of the Personnel Certification and Acknowledgement form. Copies may be made.

B. Sign and date the Form in the space provided.

C. Completed Bidders Status Form to be included by low bidder along with the 24 hr. information.

3.6 SUBMISSION OF PROPOSALS

A. Bidders shall bear full responsibility for delivering Proposals to the location for receipt of Proposals by the time and date for receipt of Proposals.

B. Owner will not provide telephones for use by Bidders when preparing their bid.

C. Telephone, faxed or oral bids will not be accepted.
3.7  MODIFICATION OR WITHDRAWAL OF PROPOSALS

A. Any Bidder may withdraw his bid if written request for withdrawal signed in the same manner and by the same person who signed the Bid Form is received by the individual of the School District requesting the bids prior to the time established for the opening of the Bids.

B. No Bidder may withdraw his bid for forty-five (45) days after the scheduled time set for the opening thereof, or before award of the Contract, unless said award is delayed for a period exceeding forty-five (45) calendar days.

C. Proposals that are withdrawn may be resubmitted before the time and date designated for the receipt of Proposals.

D. No oral, telephonic, telegraphic or FAXED modifications will be considered.

END OF DOCUMENT
PROPOSAL FOR: McKinley Classroom Casework & Grease Interceptor

TO: Des Moines Independent Community School District
Operations Center, Supply Chain Analyst, 1917 Dean Avenue
Des Moines, Iowa 50316

COVERING BID NO: B8749

SUBMITTED BY: ____________________________
Name of Bidder

Members of the Board:

The undersigned has carefully examined the site, the proposed Contract Documents prepared by Studio Melee pertinent to the construction of the above referenced Project. Further, being familiar with all other conditions affecting the Work, the undersigned hereby proposes and agrees to furnish and provide all labor, materials, supervision, transportation, tools, equipment, services and other facilities necessary and required for the expedient completion of the Work indicated above in strict conformity with said conditions and Contract Documents.

The undersigned has reviewed the work outlined in the Bidding Documents and fully understands the scope of work required in this Proposal. The undersigned acknowledges that the Proposal includes the work of all trades required for the work and understands the Owner Representative function as described in the Contract Documents. The undersigned understands that each bidder who is awarded a Contract shall be in fact a Prime Contractor, not a Subcontractor to the Des Moines Independent Community School District. The undersigned agrees that the proposal, if accepted by the Owner, will be the basis for a contract with the Owner to enter into such a contract in accordance with the intent of the Contract Documents.

The undersigned agrees to complete the work required, within the time indicated in the Contract Documents, subject to Liquidated Damages as specified in Documents 00210 and 00700.

The undersigned acknowledges the Iowa - Targeted Small Business program and actively pursued participation (document 00312). Yes ___ No ___ Low bidder to submit completed form with 24 HR. information.

The undersigned certifies that bidder has read and adheres to the terms of the Non-Collusion Affidavit (document 00313). Low bidder to submit completed form with 24 HR. information.

The undersigned has completed the Bidders Status worksheet (document 00314) and certifies the firm to be an Iowa:

Resident Bidder _____ Non-resident Bidder _____ Low bidder to submit completed form with 24 HR. information.

Enclosed in a separate envelope is a Bid Security for five percent (5%) of the amount of the Base Bid, made payable to the order of Des Moines Independent Community School District. It is to be left in escrow with the Owner as a guarantee that the undersigned will enter into a Contract and will furnish the specified insurance and bonds. The undersigned has notified the Owner Representative of any discrepancies or omissions, or of any doubt about the meaning of any of the Contract Documents, and has contacted the Owner Representative before bid date to verify the issuing of any clarifying Addenda.

______________________________
Contractor Name

PROPOSAL FORM TO BE SUBMITTED IN INNER ENVELOPE
The undersigned further acknowledges receipt of the following Addenda:

<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
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**BASE BID - BID NO. B8749  McKinley Classroom Casework & Grease Interceptor**

The undersigned proposes to provide and construct the Work required, in accordance with said Contract Documents for the lump sum price of: 

\[
\text{\$} \text{________}_{\text{words}} \text{________}_{\text{dollars}}, \:\text{EXCLUDING ALL SALES TAXES.}
\]

(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern).

**SCHEDULE OF ALTERNATES**

**ALTERNATE 1: COMBINE CLASSROOM #211 AND CLASSROOM #212 INTO A LARGER CLASSROOM.**

The undersigned proposes to provide the work under this alternate as described for the lump sum price of:

\[
\text{\$} \text{________}_{\text{words}} \text{________}_{\text{dollars}}, \:\text{EXCLUDING ALL SALES TAXES.}
\]

*Circle one: Deduct   Add*

(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern).

**LIST OF SUBCONTRACTORS AND SUPPLIERS OF LABOR AND MATERIAL**

The lowest bidder for each contract shall, within twenty-four (24) hours following the bid opening, provide the Owner with the List of Subcontractors and Suppliers of Labor and Material. Subcontractor is any entity performing 1-1/2% or more of the contract value. The List shall detail the quotations used in the preparation of the bid and whose services are proposed to be used in construction of the project. The List must be complete showing all sections in the Construction Documents. Failure to submit the List may preclude the bid from further consideration by the Owner. The Owner reserves the right to either disclose or not disclose the List of the successful Bidder.

Each Bidder shall identify and fully disclose on the List all those subcontractors and suppliers proposed for the work with which the Bidder is connected either directly or indirectly as part owner, participant in profits and losses or in any other manner financially or economically.

Contractor Name
The forms for the List of Subcontractors and Suppliers of Labor and Materials are included in the Instruction to Bidders, Section 00100.

AGREEMENT

It is understood and agreed that if written notice of the Owner’s acceptance of this proposal is mailed, telegraphed, or delivered to the undersigned after the opening of the bid, and within forty-five (45) days, or at any time thereafter before this bid is withdrawn, the undersigned will execute and deliver to the Owner an Agreement in accordance with the bid as accepted. The undersigned will also furnish and deliver to the Owner the Payment Bond, Performance Bond and Certificate of Insurance as specified in the Contract Documents, all within ten (10) working days after receipt of Notice of Contract Award. The work under the Contract shall be commenced by the undersigned bidder, if awarded the Contract, on the date to be stated in a Notice to Proceed, issued to the Contractor and shall be completed by the Contractor in the time specified in the Contract Documents. In the event the bidder to whom an award is made fails or refuses to execute the Contract within the specified time frame; the Owner may declare the bidder's bid security forfeited as damages caused by the failure of the bidder to enter into the Contract.

If this proposal is determined to be (preliminarily) the lowest responsible bid, the undersigned shall submit a listing of subcontractors and major materials suppliers in accordance with G.C. – 27.00 and the Instructions to Bidders within 24 hours of being notified of such finding by the Owner Representative.

The undersigned acknowledges the fact that the Owner reserves the right to accept or reject any and all proposals, to waive any informality in receipt of this proposal, with or without cause or reason, and award the Contract on the basis stated in the Instructions to Bidders.

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth below, together with the signatures of authorized officers or agents. If bidder is a partnership, the true name of the firm shall be set forth below together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership. If bidder is an individual, his signature shall be placed below.

SUBMITTED BY: _____________________________________________________________

Name of Bidder

Address: _________________________________________________________________

Phone #: _____________________________ Fax #: _____________________________

Contractors, License No.: __________________________ Signature

License Expiration Date: __________________________

Position

If Corporation: State of Incorporation: __________________________

AFFIX CORPORATE SEAL HERE ➔

(IF APPLICABLE)

Contractor Name

PROPOSAL FORM TO BE SUBMITTED IN INNER ENVELOPE
THIS STATEMENT MUST BE NOTARIZED.

STATE OF IOWA, ______________________ COUNTY, ss:

Subscribed and sworn to before me by the said ______________________ on this ______
______ day of _______________, 202_.

____________________________________
Notary Public in and for the State of Iowa

Contractor Name
If bidder is awarded the contract for this project, the bidder proposes for owner approval the award of a subcontract to the following certified Iowa TSB's:

(if more room is needed, supply same information on second sheet and attach to this form)

1. _____________________________________________
   TSB Company Name   Address
   ____________________________  __________________
   Description of Work   Dollar Amount

2. _____________________________________________
   TSB Company Name   Address
   ____________________________  __________________
   Description of Work   Dollar Amount

3. _____________________________________________
   TSB Company Name   Address
   ____________________________  __________________
   Description of Work   Dollar Amount

________________________________________________
Bidder's Company Name   Telephone No.
_____________________________   ____________________________
Address   City   State   Zip

_____________________________
Signature (Same person who signs proposal)   Title

_____________________________
Type/Print Name   Date

THIS STATEMENT MUST BE NOTARIZED.

STATE OF _______________, _______________ COUNTY, ss:

Subscribed and sworn to before me by the said ____________________________ on this ______
______ day of _______________, 202__.

______________________________________
Notary Public in and for the State of _____________

_____________________________
Contractor Name

Low bidder to submit form with 24 HR information
Bidder is _____ / is not _____ a certified Iowa Targeted Small Business, (TSB).

If bidder did not contact any certified Targeted Small Businesses, then state why:

**The following TSB's were contacted and declined to participate:**

(If more room is needed, supply same information on second sheet and attach to this form)

1. _____________________________________ ___________________________________
   TSB Company Name     Address
   ___________________________ _______________ _______________
   Contact Name      Date Contacted Telephone No.
   __________________________________________________________________
   Reason given for declining participation

2. _____________________________________ ___________________________________
   TSB Company Name     Address
   ___________________________ _______________ _______________
   Contact Name      Date Contacted Telephone No.
   __________________________________________________________________
   Reason given for declining participation

3. _____________________________________ ___________________________________
   TSB Company Name     Address
   ___________________________ _______________ _______________
   Contact Name      Date Contacted Telephone No.
   __________________________________________________________________
   Reason given for declining participation

4. _____________________________________ ___________________________________
   TSB Company Name     Address
   ___________________________ _______________ _______________
   Contact Name      Date Contacted Telephone No.
   __________________________________________________________________
   Reason given for declining participation

__________________________________________________________
Contractor Name

Low bidder to submit form with 24 HR information
DES MOINES INDEPENDENT
COMMUNITY SCHOOL DISTRICT
McKINLEY CLASSROOM CASEWORK & GREASE INTERCEPTOR

NON-COLLUSION AFFIDAVIT

The Contractor and/or the sub-contractors, as applicable, shall provide this affidavit:

NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID IN OUTER ENVELOPE.

State of Iowa   )
) ss.
County of Polk   )

being first duly sworn, deposes and says that he or she

(Name)

is _________________________________________  of ________________________________,

(Title)       (Contractor)

the party making the foregoing bid that the bid is not made in the interest of, or on the behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereto to effectuate a collusive or sham bid.

The undersigned certifies under penalty of perjury that the foregoing is true and correct;

THIS STATEMENT MUST BE NOTARIZED.

NAME OF CONTRACTOR: ____________________________

BY: ____________________________________________

Signature          Title

Type/Print Name       Date

STATE OF __________________,     COUNTY, ss:

Subscribed and sworn to before me by the said __________________________ on this _______ day of ________, 202__.

____________________________________________
Notary Public in and for the State of__________________________

Low bidder to submit form with 24 HR information

Contractor Name
Low bidder to submit form with 24 HR information

Contractor Name
Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

☑ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: __________ / __________ / __________ to __________ / __________ / __________
Address: __________________________
City, State, Zip: ______________________

Dates: __________ / __________ / __________ to __________ / __________ / __________
Address: __________________________
City, State, Zip: ______________________

Dates: __________ / __________ / __________ to __________ / __________ / __________
Address: __________________________
City, State, Zip: ______________________

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to resident bidders, resident labor force preferences or any other type of preference to bidders or laborers? ☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: __________________________
Signature: __________________________ Date: __________________________

Low bidder to submit form with 24 HR information

Contractor Name
Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.

☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

Low bidder to submit form with 24 HR information

________________________
Contractor Name
Acknowledgment & Certification

("Company") is providing services to the Des Moines Independent Community School District ("District") as a Contractor, vendor, supplier, provider or sub-provider and/or is operating or managing the operations of a Contractor, vendor, supplier or provider. The services provided by the Company may involve the presence of the Company’s employees upon the real property of the District.

The Company acknowledges that Iowa law prohibits a sex offender who has been convicted of a sex offense against a minor from being present upon the real property of the District. The Company further acknowledges that, pursuant to Iowa law, a sex offender who has been convicted of a sex offense against a minor shall not operate, manage, be employed by, or act as a Contractor or volunteer at the District.

The Company hereby certifies that no one who is an owner, operator or manager of the Company has been convicted of a sex offense against a minor. The Company further certifies and agrees that it shall not permit any person who is a sex offender convicted of a sex offense against a minor to provide any services to the District in accordance with the prohibitions set forth above.

The Company further certifies that the Company has completed a satisfactory background check on the Company’s employees. The Company hereby agrees to provide the District with the Company’s background screening procedures including specific context and infractions that are reviewed by the Company. The District reserves the right to, but does not have the obligation to, conduct a District background check on Company employees as determined by the District in its sole discretion. The District reserves the right to restrict access of any Company employee upon the real property of the District if such employee does not clear the District’s background check.

The District reserves the right, but does not have the obligation to, to audit the Company’s background screening program at any time, whether announced or unannounced. The Company hereby agrees that the Company shall, upon request, permit an authorized District representative to review background screening records, including those of individual Company employees, in order to conduct a compliance review, audit or investigation, to the fullest extent permitted by law.

The Company shall ensure that the provisions of this Acknowledgement and Certification are extended to any and all subcontractors, consultants, or others the Company may engage if such engagement involves their presence upon the real property of the District.

The Company understands and agrees that violation of any of the provisions of this Acknowledgement and Certification shall constitute sufficient grounds for termination of any contract or subcontract without damages or penalty to the District.

This Acknowledgment and Certification is to be construed under the laws of the State of Iowa. If any portion hereof is held invalid, the balance of the document shall, notwithstanding, continue in full legal force and effect.

In signing this Acknowledgment and Certification, the person signing on behalf of the Company hereby acknowledges that he/she has read this entire document that he/she understands its terms, and that he/she not only has the authority to sign the document on behalf of the Company, but has signed it knowingly and voluntarily.
Signed:__________________________________________

Print Name:______________________________________

Title:____________________________________________

Date:____________________________________________
Draft Policy Regarding Background Checks of Applicants for Employment

The Des Moines Independent Community School District’s primary function is the education and care of the District’s students. The District considers student safety and well-being to be of paramount importance. Because of the requirements of Iowa law, and in order to further these compelling interests, the District’s hiring process includes requests for information regarding an applicant’s past criminal conviction(s). Background checks will be conducted as required by law and District policy/practice. Background checks will not be performed until a recommendation to hire has been made by the hiring team, after the interview process has occurred.

The District is also committed to equity in its entire employment process, including its hiring process. In order to achieve an equitable process with respect to the consideration of criminal convictions, while promoting the compelling interests of student safety and well-being, the District will consider an applicant’s criminal record in light of the following:

1. All applications will be considered on a case-by-case basis. While the District will endeavor to consider each applicant’s individual situation, it will also attempt to achieve equitable results between similarly-situated applicants.
2. Because honesty and candor are essential to the employer-employee relationship, failure of an applicant to disclose past criminal convictions on their application for employment and/or failure to cooperate with requests from the District to provide additional information necessary to the hiring process will generally result in a denial of employment.
3. Where an applicant’s application and/or background check result in a finding that the applicant has one or more criminal convictions, the District will issue a Pre-Adverse Action Notice to the employee, requesting that the employee provide the District with additional information relating to the conviction(s) prior to the District making a decision relating to the applicant’s employment. The applicant’s cooperation and candor are important. If the applicant fails to provide additional information within the time requested, the District will make a decision based on the information available to it. Applicants should be aware that failure to promptly and voluntarily provide additional information will weigh heavily against hiring that applicant.
4. Once the District has received all available information relating to the applicant’s criminal background, the District will analyze all available information on a case-by-case basis. Factors examined by the District may include, but are not necessarily limited to all considerations that are job-related and consistent with business necessity, including specifically:
   a. The gravity of the offense/conduct,
   b. Whether the individual has a record of multiple convictions or a documented pattern indicating disregard or the law,
   c. Time since the offense(s),
   d. Whether there are any pending charges at the time of application,
   e. Nature of the job sought,
   f. How the offense(s) relates to the job,
   g. The population the applicant may interact with,
   h. Where applicable, evidence of rehabilitation
5. If the District determines not to move forward with employment, the applicant will
6. If an application is rejected due to an applicant’s past criminal conviction(s), that employee may be considered for employment no sooner than seven (7) years from the date of the most recent offense. All decisions will be made based on all information available to the District at the time of the subsequent application.
BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we ______________________ as Principal, and ______________________ as Surety, are held and firmly bound to the Des Moines Independent Community School District, hereinafter called the "School District," in the penal sum of ______________________ Dollars ($ _____________), in lawful money of the United States, for the payment of which sum will and truly be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly, by these presents. The condition of this obligation is such that whereas the Principal has submitted the accompanying Bid, dated ______________________ for the project:

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period be specified, within forty-five (45) days after said opening, and shall, within the period specified therefore, or, if no period be specified, within seven (7) days after the prescribed forms are presented for signature, enter into a written Contract with the School District, in accordance with the bid, as accepted, and give bond with good and sufficient Surety or Sureties, as may be required for the faithful performance and proper fulfillment of such Contract, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

By virtue of statutory authority, the full amount of this Bid Bond shall be forfeited to the School District in liquidation of damages sustained in the event that the afore described bidder, Principal, fails to execute the Contract and provide the bond as provided in the Specifications or by law.

IN WITNESS WHEREOF, the parties have executed this instrument under their several seals this the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by the undersigned representatives pursuant to authority of the governing bodies.

______________________________
(date) Principal
By: ____________________________

______________________________
(date) Surety
By: ____________________________

(Attach Power of Attorney of agent executing Bond)

END OF DOCUMENT
PART 1 - GENERAL

1.1 OWNER/CONTRACTOR AGREEMENT

A. The Agreement between the Owner and each Contractor will be written on the Owner's standard Owner/Contractor Agreement Form. A sample of this form appears as Document 00510.

B. The Owner/Contractor Agreement Form will be completed by the Owner and will be sent to the selected Contractor. A minimum of three (3) copies will be prepared for signing.

C. The executed Owner/Contractor Agreement, along with the Contract Documents as defined in Document 00700, will be the entire, integrated Contract between the Owner and each Contractor.

D. Upon receipt of an Owner/Contractor Agreement, the successful Bidder shall review it for completeness and accuracy, execute it, and return it to the Owner.

E. The Owner will execute each Owner/Contractor Agreement after the Bidder and after all required post-bid documents, (see 1.2.C. below), have been submitted.

1.2 NOTICE OF CONTRACT AWARD

A. The Owner shall issue a Notice to Proceed prior to the commencement of work under the Owner/Contractor Agreement.

B. No Contractor shall commence work until all required bonds (Documents 00600, 00610 and 00620) and insurance (Document 00650) have been submitted to and accepted by the Owner.

C. Upon receipt of a Notice to Proceed, and receipt of requisite bid documents, each Contractor shall commence work in accordance with the conditions contained in the Notice to Proceed.

END OF DOCUMENT
CONSTRUCTION AGREEMENT

THIS AGREEMENT, made and entered into this ___ day of ______, 202__ by and between DES MOINES INDEPENDENT COMMUNITY SCHOOL DISTRICT (hereinafter designated as the “Owner”), and ________________________ (hereinafter designated as the “Contractor”), in connection with the construction of ____________ complete with all work appurtenant thereto.

In consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties agree as follows:

CA - 1.00 SCOPE OF THE WORK

The Contractor will furnish all tools, equipment, machinery, supplies, superintendence, insurance, transportation and other construction accessories, services and facilities specified or required to be incorporated in and form a permanent part of the completed work. In addition, the contractor shall provide and perform all necessary labor in a good, firm, substantial workmanlike manner and in accordance with the conditions and prices stated in the Bid Proposal and the requirements, stipulations, provisions and conditions of the Contract Documents as defined in the attached General Conditions. Said documents form the contract and are as fully a part thereof as if repeated verbatim herein. The Contractor shall perform, execute, construct and complete all things mentioned as to be done by the him in the Contract Documents, the Owner's official award of this contract to the Contractor being based on the acceptance by the Owner of the Contractor's bid, or part thereof.

CA - 2.00 THE CONTRACT DOCUMENTS

The Contract Documents shall consist of this written Agreement, which shall incorporate by this reference all of the instruments set out in Article 1 of the General Conditions as fully as if they were set out in this Agreement in full. All of the said documents and instruments are incorporated into this Agreement by the signature of the parties hereto.

CA - 3.00 TIME OF COMPLETION

The Contractor agrees to commence work under this Agreement by no later than __________ and to substantially complete all work by no later than ____________.

CA - 4.00 LIQUIDATED DAMAGES

The Contractor understands and agrees that the completion of the entire project within the time provided is an essential feature of this Agreement. The Owner will sustain substantial damages, the amount of which is not possible to accurately determine at this time, if the work is not so completed.

The Contractor, therefore, agrees to proceed with due diligence, taking all precautions and making all necessary arrangements to insure the completion of the work within the prescribed time. The Contractor further agrees that should he fail to finally and fully complete the work within the time stipulated, the Owner shall be entitled to collect liquidated damages for the cost of delay, in accordance with the General Conditions of the Contract and as defined in the Contract Documents.

CA - 5.00 CONTRACT SUM

The Owner shall pay to the Contractor for performance of the work encompassed by this Agreement, and the Contractor will accept as full compensation therefor the lump sum of:

See Attachment “A”
subject to adjustment as provided by the Contract Documents, to be paid by progress payments in cash or its equivalent in the manner provided for in the Contract Documents.

CA - 6.00 ACCEPTANCE AND FINAL PAYMENT

A.) Early Release of Retained Funds - Upon Substantial Completion the Contractor may apply for a partial or full release of retained funds. The Contractor, the Architect, and the Owner shall inspect the work covered by the portion of funds requested. When the work is found to be acceptable under the Agreement, including the satisfactory completion of all items covered by the request, the Architect shall promptly certify such to the Owner, over his own signature. The certification shall state that that portion of work provided for in this Agreement has been completed in accordance with the Contract Documents and is accepted by the Architect under the terms and conditions therefor. The Owner shall have the right to withhold 1) an amount equal to 200% of the value of labor and materials yet to be provided on the project as determined by the Owner and its authorized representative and 2) an amount equal to 200% of the value of any Chapter 573 claims currently on file at the time the request for release of retained funds is approved. The balance found to be due the Contractor, and noted in said certificate, shall be due and payable. Approval of the retained balance will be made by resolution of the Owner’s Board of Directors within thirty (30) days, unless otherwise agreed to by the parties.

B) Final Payment of Retained Funds - Upon receipt of written notice that the work is ready for final inspection and acceptance, the Contractor, the Architect, and the Owner shall inspect the work. When the work is found to be acceptable under the Agreement, and the Agreement fully performed, including the satisfactory completion of all punch list items, the Architect shall promptly certify such to the Owner, over his own signature. The certification shall state that the work provided for in this Agreement has been completed in accordance with the Contract Documents and is accepted by the Architect under the terms and conditions therefor. The entire balance found to be due the Contractor, and noted in said final certificate, shall be due and payable. Before issuance of the Owner’s Letter of Acceptance, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work has been or will promptly be paid.

CA - 7.00 REPRESENTATIONS

The Contractor shall not extend the credit or faith of the Owner to any other persons or organizations.

CA - 8.00 ASSIGNMENT

The Contractor shall not assign all of his rights or obligations under this Agreement without the express written consent of the Owner. Upon any assignment even though consented to by the Owner, the Contractor shall remain liable for the performance of the work under this Agreement.

CA - 9.00 PARTIAL INVALIDITY

If any provisions of this Agreement are in violation of any statute or rule of law of the State of Iowa, then such provisions shall be deemed null and void to the extent that they may be in violation of law without invalidating the remaining provisions hereof.

CA - 10.00 WAIVER

No waiver of any breach of any one of the agreements, terms conditions or covenants of this Agreement by the Owner shall be deemed or imply or constitute a waiver of any other agreement, term, condition or covenant of this Agreement. The failure of the Owner to insist on strict performance of any
agreement, term, condition or covenant, herein set forth, shall not constitute, or be construed as a waiver of the Owner’s rights thereafter to enforce any other default; neither shall such failure to insist upon strict performance be deemed sufficient grounds to enable the Contractor to forego or subvert or otherwise disregard any other agreement, term, condition or covenant of this Agreement.

CA - 11.00 ENTIRE AGREEMENT

The within Agreement, together with the Contract Documents as defined in Article 2.00 herein, constitute the entire agreement of the parties hereto. No modification, change, or alteration of the within Agreement shall be of any legal force or effect unless in writing, signed by all the parties hereto.

CA - 12.00 COUNTERPARTS

This Agreement may be executed in several counterparts and each such counterpart shall be deemed an original.

CA - 13.00 GOVERNING LAW

Venue for any and all legal actions regarding or arising out of the transaction covered herein shall be solely in the District Court in and for Polk County, State of Iowa. This transaction shall be governed by the laws of the state of Iowa.

CA - 14.00 ATTORNEYS’ FEES

In the event it becomes necessary for either party to enforce any provisions or breach of this Agreement by commencing litigation, the prevailing party in such action shall be entitled to collect, as part of any judgment entered, its reasonable expert witness and attorneys’ fees and costs.

CA - 15.00 NOTICES

All notices, requests, demands and other communications given or to be given under this Agreement shall be in writing. They shall be deemed to have been duly given when served if served personally, or on the second day after mailing if mailed by first class mail, registered or certified, postage prepaid, and properly addressed to the party to whom notice is to be given as set forth below.

If to Owner: DMPS Executive Director of Operations

If to Contractor, then to the individual at the address set forth in the signature block below.

Either party may change its address for purposes of notice by giving written notice to the other party in accordance with this paragraph.

CA - 16.00 BONDS

The Contractor shall furnish both a performance bond and a payment bond and shall pay the premium thereon. The performance bond shall guarantee the full performance of the contract.

CA – 17.00 DESIGNATED REPRESENTATIVE

The OWNER will designate a District representative who will be its authorized representative with the CONTRACTOR under this AGREEMENT.
IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first above written, and shall extend to and bind the parties, their successors, assigns and personal representatives.

DES MOINES INDEPENDENT
COMMUNITY SCHOOL DISTRICT

By: ________________________________ ATTEST: ________________________________
President, Board of Directors Secretary, Board of Directors

_______________________________
Contractor Firm & Address:

_______________________________
Contractor Signature
Attachment “A” to Document 00510

Construction Agreement
Des Moines Independent Community School District
(McKINLEY CLASSROOM CASEWORK & GREASE INTERCEPTOR)

RE: Award of Bid No. B8749

As recorded in the meeting minutes of the Board of Directors held on _____________, the following is a description of the base bid and alternates proposed by ____________________ and accepted by the Board of Directors:

Base Bid:
Alternate

(Contractor Name). bid:

Base Bid:  $
Total Contract Amount: $
PART 1 - GENERAL

1.1 BONDS

A. The Owner shall require the Bidder to whom a Contract is awarded to furnish both Performance and Labor and Material Payment bonds in the amount of one hundred percent, (100%), of the Contract price. Bonds shall cover the faithful performance of the Contract and the payment of all obligations arising thereunder. The Bidder will further provide warranties as required by the specifications or General Conditions.

B. The bonds shall be executed on the forms included with the Contract Documents (forms shall not be removed from the Contract Documents; Bidders shall obtain original copies of the bond forms from the Owner’s Representative). Accompanying each bond form shall be a “Power of Attorney” authorizing the attorney in fact to bind the surety company and certified to include the date of the bond.

C. Performance Bond shall be in the amount of one hundred percent (100%) of the total amount of work covered by this contract. It shall guarantee the faithful performance of the Contractor or manufacturer; and it shall insure the District during the work required by any Contract and for a period of one (1) year from the date of final acceptance of the work, against faulty or improper materials and/or workmanship that may be discovered during that time. If required, warranties extending beyond one years, such as for roofing, shall be as specified in the individual specification sections.

D. Payment Bond shall be in the amount of one hundred percent (100%) of the total amount of work covered by this contract; and shall be in accordance with the law of the State of Iowa to secure the payment of all claims for labor and materials used or consumed in the performance of this Contract.

E. Payment Bonds and Performance Bonds shall include:
   1. Full name and address of Contractor, Surety and Owner
   2. The Contract Date
   3. The exact amount of the Contract
   4. Signature of Contractor
   5. Corporate Seal if applicable
   6. Notarization of Contractor and Surety
   7. Power of Attorney
   8. Local contact for Surety, with name, phone number, and address to which legal notices may be sent.

1.2 BOND COSTS IN BIDS

A. Include all costs for Payment Bonds or Performance Bonds in the bid amounts.
LABOR AND MATERIAL PAYMENT BOND

Bond No. ______________

(This Bond is issued simultaneously with a Performance Bond in favor of the Owner conditioned on the full and timely performance of the Contract.)

KNOW ALL MEN BY THESE PRESENTS that ________________ as Principal (the “Principal”), ________________ corporation organized and existing under the laws of the State of ________________, and authorized to transact business in the State of Iowa, as Surety (the “Surety”), jointly and severally bind themselves, their heirs, personal representatives, successors, and assigns, to the DES MOINES INDEPENDENT COMMUNITY SCHOOL DISTRICT, 2100 Fleur Drive, Des Moines, Iowa 50321, as Obligee (the “Owner”), for the use and benefit of it and the claimants as defined below, in the principal amount of ________________ ($ ________________) as adjusted by approved change orders (not to exceed 10 percent of the principal amount of this Bond unless expressly approved by the Surety, which approval shall not be unreasonably withheld) and interest as provided by law, for the payment of all amounts which become due under the Contract described below.

The Principal and the Owner have entered into a written Construction Agreement dated ________________, 202__, together with related “Contract Documents” as defined therein (all of which are collectively referred to as the “Contract” and incorporated herein by this reference), for the following Project:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

The condition of this obligation is such that, if the Principal shall at all times promptly make payment of all amounts, claims, or demands lawfully due to all persons, firms, associations, or corporations supplying or furnishing to the Principal or its subcontractors labor or materials, supplies, or equipment which are used, provided, or performed in the prosecution of the work provided for in the Contract and any and all duly authorized modifications of the Contract that may hereafter be made, then this obligation shall be null and void; otherwise, the Surety shall pay the full value of all such claims or demands and shall indemnify and hold the Owner harmless from all payments which the Owner may be required to make under the Contract or applicable law in excess of the Contract price not exceeding the amount of this obligation, together with interest as provided by law, as well as attorneys’ fees and costs incurred by the Owner in the resolution of any claim. All such subcontractors, laborers, and materialmen shall have rights under the within Bond as are set forth in the statutes and laws of the State of Iowa.

Further, each and every claimant, who institutes a lawsuit for compensation or payment under the terms hereof, as part of any court award, shall be entitled to reasonable attorneys’ fees and costs.

The undersigned Surety for value received hereby agrees that no extension of time, change in, addition to, or other modification of the terms of the Contract or work to be performed thereunder, or of the specifications, or of the Contract Documents, shall in any way affect its obligation on this Bond and the
Surety hereby waives notice of any such extension of time, change, addition, or modification.

Any notice which any party desires or is required to provide another shall be in writing and shall be effective upon receipt when delivered or transmitted by personal delivery, certified (return receipt) mail, or express mail service to the addresses set forth herein.

IN WITNESS WHEREOF, said Principal and Surety have executed this Bond, this ______ day of __________________, 202__.

ATTEST: ______________________________________

Principal

By: _________________________________________

Address: ___________________________________

(SEAL)                                           

____________________________________________

(Surety)

By: _________________________________________

Address: ___________________________________

(SEAL)                                           

____________________________________________

Claims Telephone Number: _______________________

Claims Fax Number: _____________________________

The fully executed Bond form must be accompanied by a current Power of Attorney.

END OF DOCUMENT
KNOW ALL MEN BY THESE PRESENTS That ___________________________ as Principal (the “Principal”), and ___________________________, a corporation organized and existing under the laws of the State of ___________________________, and authorized to transact business in the State of Iowa, as Surety (the “Surety”), jointly and severally, bind themselves, their heirs, personal representatives, successors, and assigns to the DES MOINES INDEPENDENT COMMUNITY SCHOOL DISTRICT, 2100 Fleur Drive, Des Moines, Iowa 50321, as Obligee (the “Owner”), in the principal amount of $_________________________ as adjusted by approved change orders (not to exceed 10 percent of the principal amount of this Bond unless expressly approved by the Surety, which approval shall not be unreasonably withheld) and interest as provided by law (collectively referred to herein as the “Penal Sum”), for the performance of the Construction Agreement between the Principal and the Owner, dated _____________________________, 202__, for the following (Project):

____________________________________________________________________________
____________________________________________________________________________

together with the obligations of the Contract Documents, as defined in the Construction Agreement, all of which documents are collectively referred to herein as the "Contract" and are incorporated by this reference.

The condition of this obligation is such that, if the Principal shall at all times duly, promptly, and properly perform all the terms and conditions of the Contract and any authorized modifications thereof during the original term of the Contract, any extensions thereof that may be granted by the Owner, and during the term of any guarantee or warranty required under the Contract, the Principal and Surety shall have no obligation under this Bond, otherwise it shall remain in full force and effect.

The Surety for value received agrees that no extension of time, change in, addition to, or other alteration or modification of the terms of the Contract or work to be performed thereunder, or any other forbearance on the part of either the Owner or the Principal to the other shall in any way release or affect the Surety's liability or obligation on this Bond, and the Surety hereby waives notice of any such extension of time, change, addition, modification, alteration, or forbearance.

Whenever the Owner terminates the Contract in accordance with the terms thereof, the Surety shall, within fifteen (15) calendar days after written notice of such termination, notify the Owner in writing of its election to complete the Contract in accordance with its terms, or notify the Owner that the Surety elects not to complete the Contract. If the Surety fails to give the written notice so required within such fifteen (15) calendar day period, then it will be deemed to have elected not to complete the Contract. Should the Surety elect to complete the Contract, then it shall, within fifteen (15) additional calendar days following written notice of such election, obtain a contractor, subject to approval by the Owner in writing, to complete the original Contract in accordance with its terms and conditions and thereafter proceed with the work with due diligence and make available as the work progresses sufficient funds to pay the cost of completion less the balance of the Contract price. The Surety may not engage the
Principal to complete the Contract, without the prior written consent of the Owner, which consent may be withheld in the Owner's sole discretion. If the Surety elects to complete the Contract, then it shall be entitled to receive the balance of the Contract price, less (i) any amounts paid by the Owner to the Principal; (ii) costs incurred by the Owner in correcting any defective work; (iii) any additional legal, design professional, and other costs incurred by the Owner resulting from the Principal’s default; and (iv) liquidated damages caused by delayed performance or nonperformance of the Principal. Any progress payments, less retainage, due but not paid at the date of termination shall be paid to the Surety so long as the Surety has agreed to indemnify the Owner for the amount thereof and no other claims have been made to such funds by subcontractors or suppliers in accordance with the Contract or applicable law.

In the event the Surety elects not to complete the Contract, the Owner may then have the work completed by such means and in such manner, by contract with or without public bidding, or otherwise, as it may deem advisable. The Surety in such event shall at all times make available, as work progresses under the Contract between the Owner and its new contractor, sufficient funds, not to exceed the Penal Sum, to pay the cost of the completion of the Contract pursuant to its terms, together with the other amounts set forth in (i) through (iv) above, but in no event shall the Surety be responsible for the payment of any sums to the Owner until the Owner has paid in full its total obligation under the terms of the original Contract, plus change orders, less deductions and claims chargeable by law or by the Contract, if any, and less the retainage which will be disbursed as provided by the Contract Documents and applicable law.

The procedures set forth herein shall apply should there be a default and termination or a succession of defaults and terminations in fulfilling the terms and conditions of the work under the original Contract.

In the event there are negotiations between the Principal and/or the Surety and the Owner subsequent to the date of termination, each party shall appoint an authorized representative with authority to represent it during the negotiations. All written communications and official discussions between the parties shall be conducted by these authorized representatives. Any notice which any party desires or is required to provide another shall be in writing and shall be effective upon receipt when delivered or transmitted by personal delivery, certified (return receipt) mail, or express mail service to the addresses set forth herein.

Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work is located and shall be instituted before the expiration of three (3) years from the date on which final payment under the contract is made; provided, however, that this period may be extended by one (1) additional year by the Owner's giving written notice to the Surety within the three (3) year period of a potential claim. Any judgment recovered hereunder by the Owner shall include interest at the legal rate, together with reasonable attorneys' fees and costs.
No right action shall accrue under this Bond to or for the use of any person or entity other than the Owner or its successors and assigns.

IN WITNESS WHEREOF, the Principal and Surety have signed this Performance Bond as of the __________ day of ____________________, 202__.

ATTEST: ____________________________________________

Principal
By: ____________________________________________

Address: _______________________________________

(SEAL) __________________________________________

ATTEST: __________________________________________

(Surety)
By: ____________________________________________

Address: _______________________________________

(SEAL) __________________________________________

Claims Telephone Number: _______________________

Claims Fax Number: _____________________________

The fully executed bond form must be accompanied by a current Power of Attorney.

END OF DOCUMENT
PART 1 - GENERAL

1.1 INSURANCE CERTIFICATES

A. Each Contractor shall provide insurance certificates to the Owner indicating that all required insurance coverage is in force prior to beginning work on the project.

B. Use a standard Insurance Certificate Form such as the "Acord" Form available from your insurance agent. Also include the Owner, the Architect, and their agents, representatives and employees to be added to the original certificate as additional named insurers.

1.2 CONTRACTOR'S LIABILITY INSURANCE

A. The Contractor shall purchase and maintain liability insurance to protect the Owner and the Architect, and their agents, representatives and employees from claims set forth below which may arise out of or result from the Contractor's operations under the contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable. The insurance required shall include contractual liability insurance applicable to the Contractor's obligations. Insurance requirements are set forth in the General Conditions, Paragraph GC-25.00.

B. The insurance required shall be primary and non-contributory to any insurance possessed or procured by the Owner and limits of liability shall be not less than those set forth.

C. Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the work.

1.3 PROPERTY INSURANCE

A. The Owner will provide property insurance for losses and damages in excess of $100,000.00 in accordance with the General Conditions, Paragraph 25.03 of the contract documents. The contractor shall be responsible for and pay all losses and damages under $100,000.00.

B. The Owner will provide an endorsement listing the Architect as additional insured under all such policies of insurance.

END OF DOCUMENT
# GENERAL CONDITIONS OF THE CONTRACT

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GC - 1.00  **CONTRACT DOCUMENTS**

The Work shall be accomplished in accordance with the Contract Documents which shall be included in this Contract and shall consist of the Invitation to Bid, Instructions to Bidders, Bid Security, Proposal, Notice of Contract Award, Insurance Policies and Certificates, Notice to Proceed, Performance Bond, Labor and Material Payment Bond, Construction Agreement, the General Conditions of the Contract, Supplementary General Conditions, drawings and specifications, tests and engineering data, approved change orders, Contractor’s Requests for Payment, Architect’s Certificates, and all addenda issued by the Owner or Architect prior to the awarding of the Contract.

GC - 2.00  **DEFINITIONS**

Words, phrases, and other expressions used in these Contract Documents shall have meanings as follows:

2.01  “Contract” or “Contract Documents” shall include the items enumerated above under CONTRACT DOCUMENTS.

2.02  “Owner” shall mean the Des Moines Independent Community School District, named and designated as such in the Contract Documents acting through its duly authorized representatives.

2.03  “Contractor” shall mean the corporation, company, partnership, firm, entity, or individual named and designated as such in the Contract Documents which has entered directly into this Contract with the Owner for the performance of the Work covered thereby, and any persons or entities acting on its behalf.

2.04  “Subcontractor” shall mean and refer to a corporation, partnership, entity, or individual having a direct contract with the Contractor or another subcontractor for performing work and/or furnishing labor or material which is incorporated into the Work at the request of the Contractor or other subcontractor.

2.05  “Architect” shall mean the architects or engineers designated, appointed, or otherwise employed or delegated by the Owner, or its duly authorized representatives, acting within the scope of the particular duties entrusted to them in each case.

2.06  "Owner’s Representative" shall mean the person(s) designated by the District, acting within the scope of the particular duties entrusted to them, to provide services toward the management and implementation of the Work as the Owner’s designated representative.

2.07  “Notice to Proceed” shall be deemed to have been duly served if made in writing and delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if sent by registered or certified mail to the last known business address.

2.08  “The Work” shall mean the equipment, supplies, materials, labor, and services to be furnished under the Contract and the carrying out of all obligations imposed or required by the Contract Documents.
2.09 “The Project” is the total construction designed by the Architect of which the work performed under the Contract Documents may be the whole or a part.

2.10 All time limits stated in the Contract Documents are of the essence of the Contract and must be strictly adhered to.

2.11 The Contract shall be governed by the laws of the State of Iowa.

2.12 The date of Final Completion of a Project is the date when construction is certified by the Architect to be finally completed in accordance with Contract Documents, as modified by any change orders agreed to by the parties and when the Owner has fully accepted the Project for the use for which it was intended. Such date will be set forth on a Letter of Final Acceptance issued by the Owner.

2.13 “Drawings” or “plans” shall mean all (a) graphic and pictorial portions of the Contract furnished by the Owner and/or Architect as a basis for the award of Contract; (b) supplementary drawings furnished by the Owner and/or Architect to clarify and to define in greater detail the intent of the Contract drawings and specifications; (c) drawings furnished by the Owner to the Contractor during the progress of the Work; and (d) engineering data and drawings submitted by the Contractor during the progress of the Work, provided such drawings are acceptable to the Architect.

2.14 “Specifications” are the written technical information concerning materials, components, systems, and equipment as indicated on the drawings or plans and which state the quality, performance, characteristics, and installations to be achieved by application of construction methods.

2.15 “Substantial Completion” is:

2.15.1 Established date on which the Work or designated portions thereof has been sufficiently completed in accordance with the Contract Documents so as permit the Owner to safely and legally occupy or utilize the Work for its intended use, subject only to minor punch list items the absence of completion which does not interfere with the Owner’s intended use of the Project.

2.15.2 as defined in Iowa Code Chapter 26 for purposes of early release of retainage only.

GC - 3.00 ORAL STATEMENTS

It is understood and agreed that the written terms and provisions of the Contract Documents shall supersede all oral statements of representatives of the Owner, and oral statements shall not be effective or be construed as being a part of this Contract.

GC - 4.00 REFERENCE STANDARDS

Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification, or tentative standard adopted and published at the date of the Contract Documents unless specifically stated otherwise.
GC - 5.00  ITEMS COVERED BY CONTRACT PRICE

Unless otherwise specifically provided herein, the Contractor shall accept the compensation stated in the Construction Agreement as full payment for furnishing all materials, transportation, apparatus, temporary structures, equipment, services, fuel, energy, light, water, labor, tools and all risks and losses of every kind and description connected with the prosecution of the Work, and all other things necessary for the complete and proper execution of the Work contemplated by or reasonably implied from the Contract Documents, within the time limits indicated therein.

GC – 6.00  EXECUTION, CORRELATION, INTENT, AND INTERPRETATION OF CONTRACT DOCUMENTS AND COMPLETION DATE

6.01 Execution. The Contract Documents shall be signed in multiple copies as directed by the Owner. Within ten (10) days of Notice of Contract Award, the Contractor shall submit to the Owner a minimum of five (5) fully executed original sets of the Construction Agreement; Performance Bond and Labor and Material Payment Bond with original Power of Attorney; and certificates of required insurance coverages. The date of the Contract for purposes of these documents shall be the date of the Notice of Contract Award letter. The Owner will execute the Construction Agreement, assemble all copies, and distribute the Contract Documents. The Contractor shall not commence the Work until he receives the Notice to Proceed.

6.02 Correlation. By submitting the bid, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

6.03 Intent. The intention of the Contract Documents is to include all labor and materials, tools, equipment, construction equipment, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work. Materials or work described in words which as applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

The organization of the specifications into divisions, sections, and articles, as the case may be, and the arrangement of drawings shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade.

It is intended that even though Work is not covered under any heading, division, section, article, branch, class, or trade of the specifications, it shall nevertheless be supplied if it is required elsewhere in the Contract Documents or is reasonably inferable there from as being necessary to produce the intended results.

The specifications and drawings are intended to supplement but not necessarily duplicate each other/ Any work exhibited in one and not the other shall be executed as if it had been set forth in both, so that the Work will be constructed according to the complete design.
6.04 Interpretation. Should anything necessary for a clear understanding of the Work be omitted from the specifications and drawings, or should the requirements appear to be in conflict, the Contractor shall secure written interpretations or instructions from the Architect before proceeding with the Work affected thereby. It is understood and agreed that the Work shall be performed according to the true intent of the Contract Documents.

Where a conflict occurs between or within standards, specifications, and drawings, the more stringent or higher quality requirements shall apply. The precedence of the Construction Documents is in the following sequence:

1. Addenda to the drawings and specifications take precedence over the original Construction Documents.
2. Specifications take precedence over drawings, except in cases of error.
3. In the drawings, the precedence shall be drawings of larger scale over those of smaller scale and noted materials over graphic indications.
4. Any work mentioned in the specifications and not shown on the drawings or shown on the drawings and not mentioned in the specifications shall be of like effect as if shown or mentioned in both. The Contractor shall examine the specifications and drawings and check all dimensions and notify the Architect and the Owner of any discrepancies between the specifications and drawings and any deficiencies, omissions, or errors before any work is commenced.

6.05 All work on the Project shall be finally completed within the times indicated in the construction documents.

GC - 7.00 DRAWINGS AND SPECIFICATIONS

7.01 Copies Furnished. Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, all copies of drawings and specifications and addenda reasonably necessary for the execution of the Work.

7.02 Ownership of Drawings. All drawings, specifications, and copies thereof furnished by the Architect are the property of the Owner, whether the work for which they are made is executed or not and are not to be used on other work except by written agreement with the Owner.

7.03 Drawings and Specifications Available on the Site. The Contractor shall maintain at the site for the Owner and the Architect one copy of all drawings, specifications, addenda, approved shop drawings, change orders, and other modifications, in good order and marked to record all changes made during construction. The Contractor shall also keep on the site all applicable standards, codes, manufacturer’s or other specifications referenced in the Contract Documents. The drawings, marked to record all changes made during construction, shall be delivered to the Architect for the Owner upon completion of the Work.
7.04 **Figured Dimensions to Govern.** Dimensions and elevations shown on the drawings shall be accurately followed. Where dimensions are not indicated, Contractor shall immediately request clarification from the Architect so as not to delay the Work and Contractor shall not proceed with such work until the necessary dimensions have been obtained from the Architect.

7.05 **Contractor to Check Drawings and Schedules.** The Contractor shall check all dimensions, elevations, and quantities shown on the drawings and furnished by the Architect, and shall notify the Architect in a timely manner of any discrepancy between the drawings and the conditions on the ground, or any error or omission in drawings, or in the layout as given by stakes, points, or instructions, which he may discover. Before ordering any material or doing any work, the Contractor shall verify all measurements at the building and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and measurements taken in the field. Any difference which may be found shall be submitted to the Architect in a timely manner for consideration before proceeding with the Work. The Contractor will not be allowed to take advantage of any error or omission in the drawings or Contract Documents. Full instructions will be furnished by the Architect should such error or omission be discovered and the Contractor shall carry out such instructions as if originally specified.

7.06 **Detail Drawings and Instructions.** Upon the contractor's written report, the Architect shall furnish, within 10 working days, additional instructions by means of drawings or otherwise, necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom. The Work shall be executed in conformity therewith, and the Contractor shall do no work without proper drawings and instructions.

7.07 **Project Record Drawings.** The Contractor shall maintain a Contract set of drawings at the site with all changes or deviations from the original drawings neatly marked thereon in a contrasting color. The Contractor shall also maintain a Contract set of specifications at the site, noting therein by appropriate section, the names, models, and other distinguishing characteristics of the products actually incorporated into the Work. This set of drawings and specifications shall be updated daily as the job progresses and shall be made available to the Owner and Architect for inspection at all times. Upon completion of the Work and before final payment, this Project Record set of drawings and specifications shall be delivered to the Architect.

7.08 **Contractors’ Review of Drawings, Plans and Specifications.** Contractor’s review of drawings, plans and specifications developed by the Architect and/or the Design Team under this Agreement shall be made in Contractor’s capacity as a contractor and not as a licensed design professional.
GC - 8.00 SHOP DRAWINGS AND SAMPLES

8.01 Shop Drawings. Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, manufacturer's literature, product data, and any other information which are prepared by the Contractor or any subcontractor, manufacturer, supplier, or distributor, and which illustrate some portion of the Work. Said drawings will be submitted in a format agreeable to the Owner and Owner's Representative.

8.02 Samples. Samples are physical examples furnished by the Contractor to illustrate materials, finishes, equipment, or workmanship, and to establish standards by which the Work will be judged.

8.03 Subcontractor. The Contractor shall require each subcontractor to prepare, stamp with approval, and submit to the Contractor with reasonable promptness and in orderly sequence so as to cause no delay in the Work or in the work of any other subcontractor, all shop drawings and samples on all shop fabricated items and on all matters, required by the Contract Documents or subsequently by the Architect as covered by modifications. Shop drawings and samples will properly identify specified items. At the time of submission, the subcontractor shall inform the Contractor, the Architect and the Owner's Representative in writing of any deviation in the shop drawings or samples from the requirements of the Contract Documents. Substitutions will be allowed only in accordance with the provisions of Section 36.00 hereinafter.

The Contractor shall also require each subcontractor to prepare and transmit sufficient sets of sepia transparencies, reverse printed, and prints of all shop drawings which are specially drawn for this Project, including detailed fabrication and erection drawings, setting drawings, diagrammatic drawings, material schedules, and samples to the Contractor to meet the Project construction schedule and the subcontractors' Contract schedule, or shall present, in writing, valid reasons for any delay. Sepias shall not be folded, but shall be rolled and transmitted in a tube suitable for mailing.

All shop drawings for all equipment and/or materials in a given system shall be submitted at one time, each complete set in a separate brochure. Complete maintenance/warranty data are to be submitted to the Contractor for distribution to the Owner's Representative for review by the Architect and final acceptance by the Owner.

Each sheet of shop drawings shall identify the Project, subcontractor, and fabricator or manufacturer and the date of the drawings. All shop drawings shall be numbered in sequence and each sheet shall indicate the total number of sheets in the set.

The shop drawings shall indicate types, gauges, and finish of all materials. Where a shop coat of paint is required, its brand name, manufacturer's identification number, and type shall be indicated. Sufficient data in each set of shop drawings shall be included to permit a detailed study of the system submitted and its conformance to the Contract Documents and design intent.
The Contractor will review, approve, stamp, and then submit the sepia transparencies, prints, and samples to the Owner’s Representative and Architect for approval with copies to the Owner. After review, the Owner’s Representative will then return the sepia transparencies to the Contractor with the Owner’s Representative’s and Architect’s appropriate comments. Those returned for correction shall be corrected and resubmitted. Upon receiving the approved sepia sets from the Owner’s Representative, the Contractor will make requested sets of prints for distribution to appropriate subcontractors, fabricators, manufacturers, and suppliers who require them for coordination of their work.

8.04 Verification. By approving and submitting shop drawings and samples, the Contractor thereby represents that it has determined and verified all field measurements, field construction criteria, dimensions, elevations, quantities, materials, catalog numbers, and similar data, as shown on the drawings and specifications furnished by the Architect and that he has checked and coordinated each shop drawing and sample with the requirements of the Work and of the Contract Documents.

8.05 Architect Review. The Architect will review and approve shop drawings and samples with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect’s approval of a separate item shall not indicate approval of an assembly in which the item functions. On the completion of the Work, the Owner’s Representative shall be furnished three corrected copies of all shop or setting drawings showing the as-built condition of the Work. The Owner’s Representative, after the Architect’s review, will furnish one of these copies to the Owner. Architect will keep one copy.

8.06 Corrections. The Contractor shall make any corrections required by the Architect and shall resubmit the required number of corrected copies of shop drawings or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Architect on previous submissions.

8.07 Contractor’s Responsibility. The Architect’s approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing in a separate letter attached to the submittal of such deviation at the time of submittal and the Architect has given written approval to the specific deviation, nor shall the Architect’s approval relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.

8.08 Architect Approval Required. No portion of the Work requiring the submission of a shop drawing or sample shall be commenced until such submittal has been approved by the Architect. All such portions of the Work shall be in accordance with approved shop drawings and samples. All material finishes and samples will be approved at one time. The Contractor shall submit all items requiring approval of finishes, color, material, etc.,
with sufficient lead time to allow simultaneous consideration and preparation of complete finish Color Schedule. No approvals of single items will be considered.

**GC - 9.00 MATERIALS, LABOR, FACILITIES, AND STORAGE**

**9.01 Contractor’s Responsibility.** Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, tools, equipment, machinery, transportation, and other facilities necessary for the proper execution and completion of the Work. The Contractor shall provide and pay for all the temporary facilities required to supply all the power, light, water, and heat needed by him and the subcontractors for their work and shall install and maintain all such facilities in such manner as to protect the public and workers and conform with any applicable laws and regulations. If temporary heat and/or protection is required for the expeditious prosecution of the Work and before the permanent heating apparatus is available for use, the temporary heating apparatus shall be installed and operated in such a manner that the finish work and/or construction will not be damaged thereby.

Unless otherwise specified, the Contractor shall pay for all the power, light, and water used by him and the subcontractors, without regard to whether such items are metered by temporary or permanent meters. The cutoff date on permanent meters shall be either the agreed date of full occupancy by the Owner or the date of final acceptance of the Project, whichever shall be the earlier date. Upon completion of the Work, the Contractor shall remove all such temporary facilities from the site.

**9.02 Materials.** Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of the highest quality. The Contractor shall furnish satisfactory evidence as to the kind and quality of materials. Samples shall be furnished, when specified, and the work shall be in accordance with those samples which have been approved.

**9.03 Facilities and Storage.** The Contractor shall provide and maintain, in a neat and sanitary condition, adequate temporary toilet facilities for the use of any and all employees engaged on the Work, in strict compliance with the requirements of all applicable codes, regulations, laws, and ordinances. In no event may present toilet facilities of any existing building at the site of the Work be used by employees of the Contractor or subcontractors. Upon completion of the Work, he shall remove all such temporary facilities from the site and disinfect the premises.

The Contractor shall provide suitable temporary facilities and quarters for workmen and shall maintain on premises water-tight storage shed or sheds, tool houses for storage of building materials and tools which may be damaged by weather. The Contractor shall allow space for the erection of sheds and provide similar facilities for storage by subcontractors of their materials and tools. Storage of materials shall be confined to the site. These facilities or quarters shall further provide for protection against theft and damage of building materials and tools. Upon completion of the Work, the Contractor shall remove all such temporary facilities from the site.
The Contractor shall provide adequate, weatherproofed, heated, and well-lighted office space at the site of the Work, for the use of the Architect, Owner’s Representative, and the Owner. The Contractor shall also provide telephone service at such office, which shall be available for the use of the Architect, Owner’s Representative, and the Owner, without charge, except for toll calls. Requirements of the office space are as listed in Section 01500 paragraph 1.26.

All of the foregoing facilities shall be of a quality and placed in locations acceptable to the Owner and Owner’s Representative.

9.04 Salvage of Materials. Owner reserves the right to salvage any and all materials, equipment, furnishings, and other elements to be removed from the site regardless if such removal is indicated in the plans, specifications, drawings or other Contract Documents.

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GC - 10.00 EMPLOYEES

10.00A Qualifications. The Contractor and his subcontractors shall at all times enforce strict discipline and good order among his employees, and shall not employ on the Work any person considered by the Architect, Owner or Owner’s Representative to be unfit or not skilled in the work assigned. The Contractor shall also keep its employees and those of its subcontractor from socializing upon the site of the Work after normal work hours and from fraternizing at any time with staff, students, parents, and other persons who are at the school or the site of the Work.

10.00B No Contractor shall allow any of its employees listed on the Iowa Sex Offender Registry to perform work on District Projects. The District has interpreted an "unfit employee" for purposes of this Contract to be any employee currently listed on the Iowa Sex Offender Registry. The Contractor shall fill out and sign the “Acknowledgement and Certification” form located behind this section prior to executing the Agreement.

10.00C Employee background checks are the responsibility of the Contractor and his subcontractors.

10.01 Drug-Free Zone. The Des Moines Independent Community School District is a drug-free zone. In furtherance of this standard, the Contractor shall establish and maintain a safe and efficient work environment for all employees, free from the effects of alcohol, controlled substances, and illicit drugs. The manufacture, distribution, dispensing, possession, or use of alcohol, controlled substances, and illicit drugs is prohibited on or adjacent to the Project site and all of the Owner’s property at all times. Illicit drug use is the use of illegal drugs and the abuse of alcohol and other drugs, including anabolic steroids. Controlled substances are drugs specifically identified and regulated under state or federal law and include, but are not limited to, opiates, narcotics, cocaine, amphetamines and other stimulants, depressants, hallucinogenic substances, and marijuana. The Contractor will strictly enforce this prohibition among his own employees and his subcontractors and their employees at all times. Employees who violate these prohibitions will be subject to disciplinary action by their employers up to
and including termination and may be denied access to the site of the Work. Violation of this provision shall also constitute sufficient grounds for termination of the Contract or any subcontract without damages or penalty to the Owner.

10.02 No Smoking. Statewide smoking ban – Iowa Code Section 142D.3

1. Smoking now is prohibited in all areas of school buildings, including nonpublic schools, as well as all school grounds, parking lots, athletic fields, including inside any vehicle located on school grounds or school parking lots. No longer can a school designate a smoking area.

2. Smoking is prohibited inside all publicly owned vehicles, even if parked in a private drive.

3. Smoking is prohibited inside a private vehicle that is parked in a school parking lot.

   The Iowa Department of Public Health (DPH) is in charge of writing administrative rules for the enforcement of this new law. DPH states that it will also provide sample “no smoking” signs that schools may download for free.

4. In addition, The use of tobacco and nicotine products; including, but not limited to, cigarettes, nicotine chew, snus, dissolvables, electronic cigarettes, any electronic or other devices that can be used to deliver nicotine to the person inhaling from the device, any other look-alike products in which the original product would include tobacco and/or nicotine and/or other nicotine products that are not approved by the Federal Drug Administration for tobacco cessation; on District property; including in District buildings, on District grounds, in District transportation vehicles, or at any District activity; is prohibited.

10.03 Equal Opportunity Policy. Because it is the desire of the Des Moines Independent Community School District to encourage equal employment policies, all Contractors, including suppliers supplying goods or services to the School District, are expected to comply with the spirit of equal opportunity employment, as well as with the letter of all applicable statutes and regulations. Compliance shall require Contractor not to discriminate and, in addition, to take reasonable affirmative action to ensure that members of minority groups are effectively accorded equal employment opportunities.

10.04 Responsibility for Employees. The Contractor shall be responsible to the Owner for the acts and omissions of all its employees. The Contractor shall further be responsible for the acts and omissions of all subcontractors, their agents and employees, and all other persons acting on behalf of the Contractor or subcontractors as set forth herein.

GC - 11.00 ROYALTIES AND PATENTS. The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and shall hold the Owner harmless from loss on account thereof. If the Contractor has information that the process or article specified is an infringement of a patent, it shall be responsible for such loss unless it promptly gives such information to the Architect and Owner’s Representative.
GC - 12.00  SURVEYS, PERMITS, LAWS, REGULATIONS, AND TAXES

12.01 Surveys. The Contractor shall obtain from the Architect a copy of all surveys provided by the Owner describing property lines, elevation benchmarks, physical characteristics, and utility locations.

12.02 Permits and Licenses. General building permit will be secured and paid for by the Owner. Any other permits, governmental fees, and licenses necessary for the proper execution and completion of the Work shall be secured and paid for by the Contractor. Easements for permanent structures or permanent changes in existing facilities shall be secured, maintained and paid for by the Owner, unless otherwise specified. The Owner will negotiate and provide for all electrical, gas, water, and sewer mains for Contractor's connections. The Contractor is to arrange with the utility company for actual connection, make necessary connections, and pay for all inspection fees and permits in connection therewith as required by any governmental agency. In addition, the Contractor will furnish any material or items as required to complete all connections. The Contractor shall call for all required government inspections on a timely basis.

12.03 Laws and Regulations. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the drawings and specifications are at variance therewith, it shall promptly notify the Architect and the Owner's Representative in writing and any necessary changes shall be adjusted as provided in the Contract for changes in the Work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Architect and the Owner’s Representative, it shall bear all costs arising therefrom and to correct same.

12.04 Taxes. The Owner is exempt from sales and use taxes (Section 423.3(31) Code of Iowa). The Owner will provide exemption certificates to Contractors for materials to be incorporated into the Project.

The Contractor is subject to payment of Iowa income tax on income from this work in amounts prescribed by law. If the Contractor is a non-Iowa partnership, individual, association, or corporation, it shall furnish evidence prior to the execution of the Contract that bond or securities have been posted with the Iowa State Department of Revenue in the amount required by law.

GC - 13.00  BENCHMARKS, MONUMENTS, STAKES, AND MEASUREMENTS

13.01 Benchmarks. The Contractor shall properly stake out the Work and provide and rigidly set benchmarks and batter boards as necessary for the proper performance of the Work. The Contractor shall remain responsible for their maintenance and their accuracy. A permanent benchmark, approved as to location and type by the Architect, from which all grades are to be taken, shall be established near the site of the Work by the Contractor. From this benchmark the Contractor shall ascertain all grades and levels to the building
as needed. The Contract Documents shall include all necessary information to establish the benchmark.

13.02 Preservation of Monuments and Stakes. The Contractor shall carefully preserve all monuments, benchmarks, property markers, reference points, and stakes. In case of his destruction thereof, the Contractor will be charged with the expense of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent monuments or benchmarks which must be removed or disturbed shall be protected until properly referenced for relocation. The Contractor shall furnish materials and assistance for the proper replacement of such monuments or benchmarks.

13.03 Measurements. Before ordering any material or performing any work, the Contractor shall verify all measurements at the Project and shall be responsible for the accuracy of same. No extra charge or compensation shall be allowed because of any difference between actual dimensions and the measurements indicated in the drawings or specifications. Any discrepancies shall be submitted to the Architect, Owner and Owner’s Representative for consideration before proceeding with the Work.

GC - 14.00 PROTECTION OF WORK AND PROPERTY

The Contractor shall take all necessary precautions for the safety of, and shall provide all necessary protection to prevent damage, injury, or loss to all employees on the Project and all other persons who may be affected thereby; all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody, or control of the Contractor or any of its subcontractors; and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with all applicable provisions of the Occupational Safety and Health Administration (OSHA) and all laws, ordinances, rules, regulations, and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. It shall erect and maintain all necessary safeguards for the safety and protection of workmen, Owners, and users of adjacent facilities and the public and shall post danger signs and other warnings against hazards created by such features of construction as protruding nails, hoists, well holes, elevator shafts, hatchways, scaffolding, window openings, stairways, excavations, and falling materials; and shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor’s superintendent unless otherwise designated in writing by the Contractor to the Owner’s Representative.

The Contractor is hereby notified that some or all of the buildings covered by this Construction Agreement may contain lead-based paint. Some or all of the buildings covered by this Construction Agreement may be considered "targeted housing" as that term is used by the United States Environmental Protection Agency ("EPA") and the Iowa Department of Public Health ("IDPH"). The scope of work described herein is not "lead abatement" as that term is used by the EPA and IDPH in that the activities included are not designed to permanently eliminate lead-based paint hazards, but are designed
to repair, restore or remodel a structure even though the activities may incidentally result in a reduction or elimination of lead-based hazards.

The Contractor is solely and fully responsible for the compliance with all applicable law and regulations regarding lead-based paint, including but not limited to those of EPA, IDPH and OSHA.

The Contractor shall be liable for and shall promptly repair, remedy, indemnify, and pay for all damage or loss to any person or property caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, except damage or loss proximately caused by faulty drawings or specifications, or to the acts or omissions of the Owner, Owner’s Representative, or Architect and not attributable to any fault or negligence of the Contractor.

In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner’s Representative, Owner or Architect, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury; and he shall so act, without appeal, if so authorized or instructed. Any compensation, claimed by the Contractor on account of emergency work, shall be determined by agreement. Notification of and report of such emergencies shall be made immediately to the Owner’s Representative, Owner and Architect.

**GC - 15.00 ACCESS TO WORK**

15.01 **Access.** The Architect, Owner’s Representative, Owner, and their representatives shall at all times have access to the Work wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access so that the Architect and Owner’s Representative may perform their functions under the Contract Documents.

15.02 **Inspection.** If the specifications, the Architect’s instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Architect and Owner’s Representative timely notice of its readiness for checking by the Architect or inspection by another authority, and if the inspection is by another authority, of the date fixed for such inspection. All required certificates of inspection shall be secured by the Contractor. If any work should be covered up without approval or consent of the Architect, it must, if required by the Architect, be uncovered for examination at the Contractor’s expense.

Re-examination of questioned work may be ordered by the Owner through the Owner’s Representative, and if so ordered, the work must be uncovered by the Contractor. If work is found to be in accordance with the Contract Documents, the Owner shall pay the cost of re-examination and replacement. If such work is found not to be in accordance with the Contract Documents, the Contractor shall pay such cost.

15.03 **Testing.** Materials incorporated into the Project will be subject to routine tests as required to ensure their compliance with the specifications. Such tests may include, but shall not necessarily be restricted to, the following: Concrete: primary mix design, slump tests, cylinder compressions tests, and air entrainment tests; Steel: tensile tests; Welds: field inspection and x-ray examination; Soils: sub-soil investigation, physical
analysis, and compaction tests; Asphalt pavement: physical analysis and compaction tests; and Roofing-Samples cut from in-place built-up roof.

Any other basic materials for which standard laboratory test procedures have been established may also be included if doubt as to their quality should arise.

Any testing of the above nature will be done at the discretion of the Owner who will bear all costs, unless otherwise provided in the Contract Documents. The Contractor shall be held responsible for providing samples of sufficient size for test purposes and for cooperating with the Owner or his representative in obtaining and preparing samples for tests. All tests will be in accordance with standard test procedures and will be performed by persons or firms selected by the Owner.

GC - 16.00 CONTRACTOR’S SUPERINTENDENCE AND SUPERVISION

During the progress of the Work, the Contractor shall ensure that a competent superintendent and any necessary assistants, all satisfactory to the Architect, Owner and the Owner’s Representative, are on the Project site at all times while work is in progress. The superintendent shall not be changed by the Contractor except with the consent of the Architect, Owner and Owner’s Representative, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in its employ. The superintendent shall represent the Contractor in its absence, and all directions given to the superintendent shall be as binding as if given to the Contractor. The Architect, Owner and Owner’s Representative shall not be responsible for the acts or omissions of the superintendent or the superintendent’s assistants.

The Contractor shall provide full-time, qualified, and efficient supervision of the Work, using competent skill and attention. It shall direct, schedule, and coordinate the Work. It is responsible for determining and supervising all temporary and permanent erection and construction sequences, techniques, means, or methods. It shall coordinate the Work to ensure that all parts fit together properly and in accordance with the Contract Documents. It shall carefully study and compare all Contract Documents and other instructions and shall at once report to the Owner’s Representative any error, inconsistency, or omission which he may discover.

The superintendent shall see that the Work is carried out in accordance with the Contract Documents and in a thorough and first-class manner in every respect. The Contractor shall provide engineering, surveying, and coordination to accurately establish all lines, levels, and marks necessary to facilitate the operations of all concerned in the Contractor’s work. It shall lay out the Work in a manner satisfactory to the Architect, making permanent records of all lines and levels required for excavation, grading, and foundations, and for all other parts of the work. It shall determine the commencement and certify the proper completion of the various stages of construction.

The Contractor shall arrange for the foreman of each subcontractor (mechanical, electrical, masonry, plastering, painting, etc.) on the job to meet with the Owner’s Representative and the Architect at the job prior to any work being started by this particular subcontractor so that all phases of the subcontractor’s work can be thoroughly discussed and the quality of materials and workmanship expected can be completely understood and agreed upon.
17.01 Field Order Request. The Owner may, at any time, by a written FOR (Field Order Request) directed through the Architect and Owner’s Representative, without notice to the sureties and without invalidating the Contract, make changes in the drawings and/or specifications of this Contract within the general scope thereof; order extra work; or make changes by altering, adding to, or deducting from the Work. If such changes cause an increase or decrease in Contract amount, an equitable adjustment shall be made and the Contract shall be modified in writing accordingly. Any claim of the Contractor for adjustment under this clause must be asserted in writing within ten (10) days from the date of receipt by the Contractor of the notification of change. No FOR or other form of order or directive by the Owner, Owner’s Representative or Architect requiring additional compensable work to be performed, which causes the aggregate amount payable under the Contract Documents to exceed the amount appropriated for the original Construction Agreement shall be issued unless the Contractor is given written assurance by the Owner that lawful appropriations to cover the costs of the additional work have been made.

Any change or aggregate of changes which causes an increase or decrease greater than 15% of the Contract amount, shall be approved by the Board of Directors in writing.

17.02 Approvals. Field orders are to be approved by the Chief Operations Officer, the Architect and the Owner’s Representative. Refer to Section 01028 “Change Procedures” for the requirements associated with documenting Field Order Requests.

17.03 Minor Changes. In giving instructions, the Architects shall have authority to make minor changes in the Work, which do not involve extra cost, and which are not inconsistent with the purposes of the building or the Owner’s intent. Architect shall immediately notify Owner and Owner’s Representative in writing of any authorized minor changes in the Work. Otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Owner and Owner’s Representative signed or countersigned by the Architect, or a written order from the Architect stating that the Owner and Owner’s Representative has authorized the extra work or change. No claim for an addition to the Contract sum shall be valid unless ordered or authorized in the manner set forth in this section.

17.04 Price Differential. The cost or credit resulting from a change in the Work shall be determined in one or more of the following ways:

a. By estimate, with a detailed cost breakdown as set forth in subparagraph c. below, and acceptance in a lump sum, with a mark-up to the Owner, for the Contractor and all affected subcontractors as outlined in Section 01028 “Change Procedures”.

Any change or aggregate of changes which causes an increase or decrease greater than 15% of the Contract amount, shall be approved by the Board of Directors in writing.
b. By unit prices named in the Contract or subsequently agreed upon.

c. If the parties are unable to agree on one of the above methods, then the amount shall be determined by force account under the following formula:

i. The actual cost of all direct labor performed (including forepersons employed continuously on the Work, but not the salary, or any part thereof, of the Contractor’s superintendent) and the actual materials furnished for and used in such work, less all available cash, trade, or other discounts;

ii. Rental for the use of such items of equipment as have an individual value in excess of One Thousand Dollars ($1,000); provided that the amount of such rental charge and the length of time and probable cost of the use of such equipment shall have been authorized in writing by the Owner and the Owner’s Representative;

iii. All proportionate sums paid for royalties, permits, and inspection fees;

iv. All proportionate premiums for Public Liability Insurance, Worker’s Compensation, and other proper and necessary insurance, as well as all applicable payroll taxes;

v. Either a predetermined lump sum, fixed fee, or a negotiated percentage fee which fee shall be applied to the total of paragraphs in i., ii., and iii. only, and shall constitute full compensation to the Contractor for all costs and expenses, including all overhead and profit, which are not otherwise enumerated above. Subcontractors, if employed by the Contractor on this part of the Work, will receive such portion of the Contractor’s fee as may be agreed and paid to them by the Contractor.

vi. The Contractor shall keep and present, in such manner as the Owner and Owner’s Representative may direct, an accurate accounting of all of the foregoing costs, together with all supporting vouchers and other documentation, all subject to audit by the Owner.

GC - 18.00 CLAIMS FOR EXTRA COST OR ADDITIONAL TIME

18.01 Claims for Extra Cost or Time. If the Contractor claims that any instructions by drawings or otherwise, after the date of the Contract, involve extra costs under this Contract which were not included in the original bid, or requires an extension of the Contract time, he shall give the Owner, Architect and Owner’s Representative written notice thereof no later than seven (7) calendar days after the receipt of such instructions, and in any event before proceeding to execute the Work, except in an emergency endangering life or property, and the procedure shall then be as provided for changes in the Work. No such claim shall be valid unless so made. Any change in the Contract amount or Contract time must be authorized by change order. Contractor must list all claims on each Pay Application submitted.
18.02 Delays and Extensions of Time. If the Contractor is delayed at any time in the commencement or progress of the critical path of the Work by any act or neglect of the Owner, Owner’s Representative or the Architect, or by any employee of each, or by any separate Contractor employed by the Owner, or by changes ordered in the Work, or by unavoidable casualties beyond the Contractor’s control which Contractor could not have avoided by the exercise of diligence, or by any cause which the Owner determines may justify the delay, then the completion date shall be extended in writing by Owner for such reasonable time as the Owner may determine. A time extension shall be Contractor’s sole remedy and compensation for all such delays.

Extension of the Contract completion time will be considered for delays due to weather conditions only when such conditions have had a material, adverse impact upon the critical path of the Construction Progress Schedule, are more unusually severe and extended than could have reasonably been anticipated based upon normal conditions for the relevant period of time, and only if a request for such an extension of time is received within seven (7) days of the first date of each delay. Actual adverse weather delay days must prevent work on critical activities for fifty percent (50%) or more of the Contractor’s scheduled work day. Determination of extension shall be made only after analyzing the ten-year average of data from NOAA and other sources for time period being claimed. Actual days over and above this ten-year average will be considered for time extension.

All requests for extension of time shall be subject to the Owner’s approval and shall be made in writing to the Owner’s Representative no more than seven (7) days after the occurrence causing the delay; otherwise they shall be waived. Any request for extension of time for a change in the Work or for any occurrence allegedly causing a delay as provided for herein must be substantiated by demonstrating the effect of the change or occurrence on the critical path of the Construction Progress Schedule.

If no schedule or agreement is made stating the dates upon which written interpretations or detail drawings shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations or drawings until fifteen (15) days after demand is made for them, and not then unless such claim is reasonable.

Should the time for completion of the Contract be extended, the Owner reserves the right to occupy any part of the structure upon written notice to the Contractor from the Owner’s Representative, but only after the Architect and Owner’s Representative have made a thorough inspection accompanied by the Contractor’s superintendent to note any defects in workmanship or materials which are the responsibility of the Contractor. Any such partial occupancy shall not be deemed a waiver of any provision for liquidated damages for delay in substantial or final completion, as applicable.

When the whole or a portion of the Work is suspended for any reason, each Contractor shall properly cover over, secure, and protect all work as may be susceptible to damage from any cause.
This Article does not exclude the recovery of damages by the Owner for delay under other provisions of the Contract Documents.

**GC - 19.00 CHANGED CONDITIONS**

19.01 *Changed Conditions.* The Contractor shall promptly, and before such conditions are disturbed, notify the Owner, Architect and Owner’s Representative in writing of:

1. (1) sub-surface or latent physical conditions at the site differing materially from those indicated in the Contract Documents, or
2. (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

The Owner, Owner’s Representative and the Architect shall promptly investigate the conditions, and if the Owner finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of the Work, an equitable adjustment shall be made and the Contract modified in writing accordingly. Any claim of the Contractor for adjustment hereunder shall not be allowed unless it has given notice as above required.

19.02 *Asbestos and Hazardous Materials.* If the Contractor, Architect or Owner’s Representative encounter or otherwise identify or suspect asbestos, asbestos-containing material, hazardous materials, except for lead-based paint, which is addressed in GC Article 14.00, or other unusual or unexpected conditions, Contractor, Architect or Owner’s Representative shall immediately notify the Owner and shall not continue work on the Project until authorized by Owner in writing.

**GC - 20.00 CORRECTION OF WORK**

20.01 *Correction of Work Before and After Completion.* The Architect, Owner and Owner’s Representative have the authority to reject work which is defective or does not conform to the Contract Documents. The Contractor, following written demand from the Owner’s Representative, shall promptly correct all work rejected by the Architect, Owner’s Representative or Owner as defective or as failing to conform to the Contract Documents whether observed before or after final completion and whether or not fabricated, installed, or completed. The Contractor shall bear all costs of correcting such rejected work, including the cost of the Architect’s, Owner’s Representative’s and/or Owner’s consultant’s additional services. If the Contractor proceeds to build in or cover the item which has been rejected, it shall be totally responsible for the cost of removal and replacement of said item and removal and replacement of all necessary work surrounding or covering the item in order to produce a first-class job.

20.02 *Tests to Determine Conformance.* Whenever in the opinion of the Architect, Owner’s Representative or the Owner, tests are essential to assure the professional evaluation of the Work which is subject to being rejected or condemned, the necessary number of tests will be performed by the consultants designated by the Owner. All parties to the Contract will comply with the methods and extent of the corrections submitted in writing to the Owner, Architect and the Owner’s Representative by the designated consultant.
The cost of the tests will become the Contractor's responsibility when corrections of any nature are recommended by the consultant to the investigated work; otherwise, the Owner will pay for all tests performed. Should such special testing, inspection, or approval be caused by the Contractor's failure to follow the requirements of the Contract Documents or of required tests under GC-15.03, Testing, indicating conditions not in conformance with the Contract Documents, the costs of such additional testing, inspection, or approval shall be borne by the Contractor, regardless of the results.

20.03 Removal of Rejected Work. The Contractor shall promptly remove from the premises all work rejected by the Architect or Owner as failing to conform to the Contract Documents whether physically in place or not. Thereafter, the Contractor shall promptly replace and re-execute such work in accordance with the Contract and without expense to the Owner. The Contractor shall further bear the expense of making good all work of other subcontractors found to be defective or destroyed or damaged by such removal or replacement.

If the Contractor does not remove such rejected work within a reasonable time, fixed by written notice from the Owner through the Owner's Representative, the Owner may remove it and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten (10) days' time thereafter, the Owner may, upon ten (10) days' written notice, sell such materials at auction or at private sale. In such case, the Owner shall account to the Contractor for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor, including compensation for additional Architect or consultant services. If the net proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate change order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

20.04 Correction of Work After Final Payment. Neither the final estimate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, it shall remedy any defects due thereto and pay for any damage to other work or property resulting therefrom, which shall appear within a period of one (1) year from the date of final completion and acceptance. This warranty shall be in addition to and not in lieu of all other remedies available to the Owner.

20.05 Failure to Correct the Work. If the Contractor fails to correct such defective or nonconforming work, the Owner may correct it and otherwise proceed against the Contractor for the cost thereof in accordance with the provisions of these General Conditions.

20.06 Deductions for Uncorrected Work. If the Owner deems it inexpedient to correct work that has been damaged or is defective or has not been completed in accordance with the Contract Documents, an appropriate deduction from the Contract price shall be made
and reflected by a change order, or, if the amount is determined after final payment, it shall be paid by the Contractor.

20.07 Additional Obligations. The obligations of the Contractor to correct the Work shall be in addition to, and not in limitation of, any other obligations imposed upon him by law, special guarantees, warranties, or other rights of the Owner.

GC - 21.00 OWNER’S RIGHT TO CARRY OUT WORK

If the Contractor should neglect to prosecute the Work properly or fail to perform any provision of this Contract, the Owner, after three (3) working days’ written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the reasonable cost thereof from the payment then or thereafter due the Contractor. In the event such work is performed by the Owner, the Owner’s employees, or by persons other than the Contractor at the Owner’s request, the Owner shall not be liable to the Contractor for inconvenience expense or subsequent cost of removal of such work. The amount to be deducted as cost of doing the Work shall include the cost of the Architect’s additional services made necessary by such default. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

GC - 22.00 OWNER’S RIGHT TO TERMINATE CONTRACT

22.01 With Cause. If the Contractor should be adjudged a bankrupt; or if it should make a general assignment for the benefit of his creditors without approval of the Owner; or if a receiver should be appointed on account of his insolvency; or if it should refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workers, competent supervision and superintendence of the Work, proper materials, or competent management of the Project; or if it should fail to make prompt payment to subcontractors or for material or labor; or disregard laws, ordinances, or the instructions of the Architect or Owner; or otherwise be guilty of a material violation of any provision of the Contract; then the Owner, when in its sole opinion sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor, and his surety, if any, seven (7) days’ written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, and appliances thereon and finish the Work by whatever method the Owner may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finally completed and accepted by the Owner. If the unpaid balance of the Contract sum shall exceed the expense of completing the Work, including compensation for additional architectural, managerial, consultant, and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided, and the damages incurred through the Contractor’s default, shall be determined by the Owner.

22.02 Without Cause. Should conditions arise which in the Owner’s opinion make it necessary or advisable to discontinue work under the Contract Documents, the Owner may
terminate the Contract in whole or in part without cause or fault by the Contractor by giving seven (7) calendar days’ written notice to the Contractor. The notice shall specify the date and extent to which the Contract is terminated. Upon any such termination, the Owner shall take possession of the site and all or any part of the materials and equipment delivered or en route to the site. In the event of termination under this paragraph 22.02, the Contractor shall be equitably paid for all work properly completed, based upon the approved Schedules of Values.

GC - 23.00 PAYMENT

23.01 Schedule of Values. Payments will be made on the valuation of the Work done. Before any Request for Payment will be considered, the Contractor shall submit to the Owner’s Representative a complete, itemized schedule of the values of the various parts of the Work, aggregating the total sum of the Contract and separating material costs from other costs. Such schedule shall include as costs the material costs of all subcontractors under such Contractor and the costs of all materials to be taken from the Contractor’s or subcontractors’ own stocks of material. The schedule shall be submitted on forms supplied by the Owner’s Representative and supported by such evidence as to its correctness as the Owner’s Representative, Architect or the Owner may direct. A separate line item shall be included in the schedule of values for overhead and profit. This schedule will be used for the estimates and payments provided for in these General Conditions. Along with such schedule the Contractor shall submit a schedule of values of estimated monthly application amounts for the course of the Work to assist the Owner in arranging payment.

23.02 Payments to Contractors. Payment to the Contractor will be made by the Owner from cash on hand from such sources as may be legally available, and from the proceeds of the Statewide Sales Tax for school infrastructure imposed by the State and authorized by the electors of the Des Moines Independent Community School District by it’s most current Revenue Purpose Statement. Payment shall be made to the Contractor based on monthly estimates in amounts equal to ninety-five percent (95%) of the Contract value of the Work completed, including materials and equipment delivered to the job during the preceding calendar month and will be based upon an Application for Payment prepared by the Contractor, subject to the approval of the Architect. One (1) copy of the Application for Payment shall be filed with the Owner’s Representative. The Architect and Owner’s Representative will certify to the Owner for payment the accuracy of each approved Application for Payment on or before eleven days prior to a regularly scheduled board meeting and within 7 working days. Such monthly payments shall in no way be construed as an act of acceptance for any part of the Work partially or totally completed. It is the policy of the Board of Directors of the Owner to schedule Certificates of Payment and accounting times to coincide with the regular meetings of the Board and to pay Contractor no more often than once per month. The Owner reserves the right to withhold payments at any time regardless of the Architect’s or Owner’s Representative’s recommendations.
The Contractor warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the Project or not, will pass to the Owner upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests, or encumbrances; and that no work, materials, or equipment covered by a Request for Payment will have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person. This provision shall not be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work or as a waiver of the right of the Owner to require the fulfillment of all the terms of the Contract.

23.03 Document Submission. Contractor shall be responsible for submitting all required Contract Documents and Applications for Payment in forms acceptable to the Owner, including but not limited to, electronic submission.

23.04 Applications for Payment. No Application for Payment will be submitted to the Owner until and unless the Architect and Owner’s Representative have certified it. No approval of a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner shall constitute an acceptance of any work not completed in accordance with the Contract Documents.

23.05 Payments Withheld. The Owner may withhold payment or the Architect may decline to approve an Application for Payment in whole or in part, or the Architect may withhold or nullify the whole or any part of any Application previously issued, because of subsequently discovered evidence or subsequent inspections, for such an amount or to such extent as may be necessary in the opinion of either to protect the Owner from loss on account of:

a. Defective work not remedied;
b. A reasonable doubt that the Contract can be completed for the balance then unpaid;
c. Damage to another Contractor;
d. Failure of the Contractor to prosecute any portion of the Work in a timely manner or in compliance with any approved schedules;
e. Failure of the Contractor to submit on a timely basis any documentation required by the Contract Documents, including, without limitation, monthly progress reports, schedule of values, potential claims or request for approval of subcontractors.

GC - 24.00 CONSTRUCTION SCHEDULE AND PROGRESS REPORTS

All time limits stated in the Contract Documents are of the essence of the Contract.
All work on the Project shall be finally completed within the times indicated in the Construction Documents.

The Contractor shall submit, within ten (10) calendar days after the date of the Notice of Contract Award in a format acceptable to the Owner, a Preliminary Construction Schedule for the Project. This schedule shall start with the date of the Notice of Contract Award, and the completion date shall be a date which will enable the Owner to accept the Work on the date specified in the Construction Agreement.

Contractor shall submit a detailed Construction Progress Schedule prior to the first application for payment. The schedule shall portray fully a timetable representing the various elements in the schedule of values and shall provide for the expeditious and practicable execution of the Work. The time shown between the starting and completion dates of the various elements within the schedule shall represent one hundred percent (100%) completion of each element. The detailed Construction Progress Schedule shall indicate the critical path of the Work. This schedule shall be revised monthly during the progress of the Work. Monthly updates of the schedule shall be required as a Condition of Approval for the Contractor’s Application for Payment. Additional detailed schedules of separate elements of the Work may be requested at the Owner’s discretion.

In addition, the Contractor shall submit with the Request for Payment monthly progress reports. Basically, these reports shall reflect the Contractor’s “work in place” progress and will be certified by the Contractor or its superintendent as to the date and contents of such “work in place” progress report. If requested by the Owner, the monthly progress reports shall also include representative photographs of the actual work in place. Such reports shall depict progress and percentage of completion, consistent with the values and amounts contained on the counterpart Request for Payment. The subcontractors shall be supplied copies of the Contractor’s approved schedule. These subcontractors shall develop a similar schedule based on their respective work. Failure to submit an approved progress schedule or monthly progress report shall be deemed cause to reject Requests for Payment.

The Contractor shall schedule all work so as to reduce to a minimum any disruption in the use of the existing facilities and interruptions of utility service of any type. Where electrical or mechanical work performed under this Contract will necessitate interruptions of service to existing facilities, the Contractor shall furnish and install temporary service to such facilities or perform such work at such times when said existing utilities are not in normal use. This Contractor shall bear the cost of all overtime or inconvenience resulting therefrom.

GC - 25.00 INSURANCE

The Contractor shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of or result from the Contractor’s operations under the Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. All such insurance shall be subject to the approval of the Owner for adequacy of protection, and shall include a provision preventing cancellation without thirty (30) days’ prior notice to the Owner in writing.

25.01 Liability Insurance Requirements. The Contractor shall procure and maintain, at its own expense, until final completion and acceptance by the Owner, liability insurance as hereinafter specified. The liability insurance required is as follows:
McKINLEY CLASSROOM CASEWORK & GREASE INTERCEPTOR

25.02 Worker’s Compensation Insurance. The Contractor shall maintain at his own expense, until completion of the Work and Final Acceptance thereof by the Owner, Worker’s Compensation Insurance, including occupational disease provisions, covering the obligations of the Contractor in accordance with the provisions of the laws of the State of Iowa. The Contractor shall furnish the Owner with a certificate giving evidence that the Contractor is covered by the Worker’s Compensation Insurance herein required, each certificate specifically stating that such insurance includes occupational disease provisions. All such certificates shall be furnished within ten (10) days after the date of the Notice of Award. This policy should also include Employer’s Liability Insurance with minimum limits of $500,000 each accident for bodily injury, $500,000 each accident for bodily injury by disease, and $500,000 policy limit for bodily injury by disease.

25.03 Property Insurance. The Owner shall pay for and maintain Property Insurance, covering property of every kind and description to be incorporated into the Work, including
materials and supplies, used or to be used, as part of or incidental to the construction operations. The insurance shall exclude the Contractor’s and its subcontractors’ equipment, tools, and machinery, which are not incorporated into the Work. The Property insurance shall be written under a ‘Special Cause of Loss Form’ to include perils of fire, lightning, windstorm, vandalism, and theft, as well as other perils normally covered by the standard Insurance Service Office Special Cause of Loss Form.

A loss insured under the Owner’s Property Insurance shall be adjusted by the Owner and made payable to the Owner on behalf of the Contractor and its subcontractors as their interests may appear. The Contractor shall pay subcontractors their just portions of any insurance proceeds received by the Owner and paid to the Contractor.

Unless the Owner agrees otherwise, in writing, all monies received shall be applied toward rebuilding or repairing the destroyed or damaged work.

The Owner, Contractor, its subcontractors and suppliers waive all rights against each other for damages caused by fire or other perils to the extent covered by the Property Insurance (for damages in excess of $100,000.00) obtained pursuant to this section or other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Owner on their behalf. The Contractor shall require similar waivers of his subcontractors, sub-subcontractors, agents, and employees of any of them.

The deductible will be $100,000.00. Contractor is responsible for all losses and damages less than the deductible.

25.04 **Installation Floater.** The Contractor shall maintain an Installation Floater policy and Builder’s Risk policy covering the Work and Materials not yet installed in the building or not otherwise covered by Builders Risk insurance. The Floater should have a minimum limit of $100,000. The Floater shall cover the following areas:

A. Property in transit; and
B. Property stored off-site at a temporary location.

25.05 **Comprehensive Automobile Liability.** The Contractor shall pay for and maintain Comprehensive Automobile Liability Insurance, including owned, non-owned, and hired vehicles in the following amounts:

Bodily Injury and Property Damage: $1,000,000 combined single limit

25.06 All liability policies which include the Owner as an additional insured shall include a Governmental Immunities Endorsement (See the Standard Endorsements Figure 1070.5), pursuant to Chapter 670.4 of the Iowa Code, which endorsement shall include the following provisions:

a. **Nonwaiver of Government Immunity.** The insurance carrier expressly agrees and states that the purchase of this policy and including the Owner as an Additional Insured does not waive any of the defenses of governmental immunity available to
the Owner under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

b. **Claims Coverage.** The insurance carrier further agrees that this policy of insurance shall cover only those claims not subject to the defenses of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

c. **Assertion of Government Immunity.** The Owner shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the insurance carrier.

d. **Non-Denial of Coverage.** The insurance carrier shall not deny coverage or deny any of the rights and benefits accruing to the Owner under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by the Owner.

This Government Immunities Endorsement shall be included on all Insurance policies which include the Owner as Additional Insured.

25.07 **Cancellation and Insurance Companies.** All policies of insurance carried by the Contractor shall provide for 30 days advance written notice of cancellation, non-renewal, or material change in insurance coverage directed to the Des Moines Independent Community School District. The Owner will accept the policies written only by sureties legally authorized in the State of Iowa.

25.08 The Contractor and its subcontractors, sub-subcontractors and their supplies are responsible for all damage to their own tools, equipment, and vehicles of every type. The Contractor, its subcontractors, sub-subcontractors and their suppliers shall waive subrogation against the Owner for any damage to such equipment, tools, and vehicles including any insurance in force to cover such equipment.

**GC - 26.00 PERFORMANCE AND PAYMENT BONDS**

The Contractor shall, within ten (10) days of the Notice of Contract Award, furnish bonds to the Owner in the full amount of the Contract price, covering both the faithful performance of the Contract and the payment of all obligations for labor and materials arising thereunder, on such forms as the Owner may prescribe and with such sureties as the Owner may approve. Such bonds shall be duly executed by a qualified surety, conditioned upon the true and faithful performance of the Contract, and shall provide that if the Contractor or his subcontractors fail to duly pay for any labor, materials, or other supplies used or consumed by such Contractor or his subcontractors in the performance of the Work contracted to be done, the surety will pay the same in an amount not exceeding the sum specified in the bond, as adjusted by approved change orders, and together with interest as provided by law. The Performance Bond shall additionally guarantee that the Contractor shall remedy any omissions, correct any and all defects, and adjust and make operable all component parts of the Work falling under the requirements of his Contract which may be called to his attention within a period of twelve (12) months following the date of the Letter of Acceptance.
The premium for all bonds shall be paid by the Contractor and included in the bid price in the Bid Proposal. The Owner will accept and approve bonds written by sureties legally authorized to write such bonds in the State of Iowa. If, at any time a surety on such a bond becomes irresponsible or loses its right to do business in the State of Iowa, the Owner may require another surety acceptable to the Owner, which the Contractor shall furnish within ten (10) days after receipt of written notice to do so.

GC - 27.00 SUBCONTRACTORS

The Contractor shall, within twenty-four (24) hours following the bid opening, provide to the Owner a completed List of Subcontractors and Suppliers of Labor and Material, which details whose quotations it has used in preparation of his bid. The Contractor shall, before awarding any subcontracts, re-verify to the Owner and Architect in writing the names of subcontractors proposed for the Project. Any deviation from the original subcontractor and supplier list will not be allowed unless justification is submitted in writing to the Owner by the Contractor that the subcontractor or supplier is deemed unfit or unable to perform the specified work, is unwilling to enter into a subcontract, or is not in compliance with the Contract Documents. The Contractor shall not employ any subcontractors that the Owner or Architect may, within a reasonable time, object to as incompetent, unfit, or otherwise undesirable. Substitutions of subcontractors listed in the executed proposal form may not be made without written approval of the Owner.

The Owner shall, on request, furnish to a subcontractor, wherever practicable, evidence of the amounts certified on his account.

The Contractor agrees that it is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor, at the conclusion of the Work and before final payment is made, shall furnish to the Owner a listing, giving names, contact persons, addresses, and telephone numbers of all subcontractors and material suppliers who furnished labor and materials on the Project with identification of the services rendered and materials provided.

Nothing contained in the Contract Documents shall create any direct contractual relation between any subcontractor and the Owner.

GC - 28.00 RELATIONS OF CONTRACTOR AND SUBCONTRACTOR

The Contractor agrees to bind every subcontractor by a written agreement and require in his Contracts that every subcontractor be bound by the terms of the Construction Agreement, the General Conditions of the Contract, the Supplementary General Conditions, the drawings and specifications as far as applicable to his work, including the following provisions of this Article, unless specifically noted to the contrary in a subcontract approved in writing as adequate by the Owner.

The subcontractor agrees with the Contractor:

a. To be bound to the Contractor by the terms of the Construction Agreement, General Conditions of the Contract, the Supplementary General Conditions, the drawings and
specifications, and any other Contract Documents, and to assume toward it all the obligations and responsibilities that it, by those documents, assumes toward the Owner;

b. To preserve and protect the rights of the Owner and the Architect under the Contract with respect to the Work to be performed under the subcontract so that the subcontracting thereof will not prejudice such rights;

c. To perform all Work in accordance with the requirements of the Contract Documents;

d. To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment as specified in the General Conditions;

e. To make all claims for extras, for extensions of time, and for damages for delays or otherwise, to the Contractor in the manner provided in the General Conditions of the Contract and the Supplementary General Conditions for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one week.

The Contractor agrees:

f. To be bound to the subcontractor by all the obligations that the Owner assumes to the Contractor under the Agreement, General Conditions of the Contract, the Supplementary General Conditions, the drawings and specifications, and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.

g. To pay the subcontractor not later than seven (7) calendar days immediately following the payment of each certificate issued under the schedule of values described in these General Conditions, the amount allowed to the Contractor on account of the subcontractor’s work to the extent of the subcontractor’s interest therein.

h. To pay the subcontractor, upon the payment of Certificates, if issued otherwise than as in g. above, so that at all times his total payments shall be as large in proportion to the value of the Work done by it as the total amount certified to the Contractor is to the value of the Work done by it.

i. To pay the subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above.

j. To pay the subcontractor a just share of any insurance payment received by the Contractor, applicable to work performed by such subcontractor.

If the Owner knows or has reason to know the Contractor is not making timely payments to the subcontractors and/or suppliers, the Owner may require the Contractor to submit verified documentation evidencing that full and timely payments have been made to the subcontractors and suppliers and/or that legal justification exists for withholding payments. In addition, the Owner may contact the subcontractors and suppliers directly to obtain verification that payments have been made as required by law or the Contract Documents.
Nothing in this Article shall create any obligation on the part of the Owner to pay or to see to the payment of any sums to any subcontractor, nor shall it form the basis for any action by the subcontractor against the Owner on any contractual theories.

GC - 29.00 ARCHITECT’S STATUS AND INSPECTIONS

29.01 Authority. The Architect shall act on the Owner’s behalf through the Owner’s Representative during construction and until the expiration of the warranty period. The Architect has the authority to act on behalf of the Owner only to the extent expressly provided in the Contract Documents or otherwise in writing. The Architect, with written approval of the Owner, shall have authority through the Owner’s Representative to stop the Work whenever such stoppage may be necessary in the Architect’s reasonable opinion to ensure the proper execution of the Contract.

29.02 Decisions. The Architect shall be, in the first instance, the interpreter of the conditions of the Contract and the judge of its performance, although the Owner shall retain the final authority in decisions regarding such matters. The Architect shall, within a reasonable time, make recommendations to the Owner’s Representative on all claims of the Contractor and on all other matters relating to the execution and progress of the Work. All such decisions shall be subject to review by the Owner. The Architect’s decisions in matters relating to artistic effect, after consultation with the Owner, shall be final, if within the terms of the Contract Documents.

29.03 Inspections. The Contractor shall provide timely notice to the Owner, Owner’s Representative and the Architect when inspections are desirable or required by the terms of the Contract or the Architect’s and Owner’s Representative’s agreement with the Owner. Such notice shall be given in order to allow for the following reviews and inspections, among others:

   a. Reviewing and approving shop drawings samples and other submissions for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents;

   b. Inspection of bearing surfaces of excavations before footings are poured;

   c. Inspection of reinforcing steel after installation and before concrete is placed;

   d. Inspection of structural and architectural concrete before, during, and after pouring;

   e. Evaluation of all laboratory reports;

   f. Inspection of structural steel after erection and prior to its being covered or enclosed;

   g. Inspection of mechanical work following its installation and prior to its being covered and enclosed;
h. Inspection of electrical work following its installation and prior to its being covered or enclosed; and

i. Inspection of exposed surfaces for compliance with the Construction Documents.
GC – 30.00  OWNER’S REPRESENTATIVE’S STATUS AND INSPECTIONS

30.01 Authority. The Owner’s Representative shall be the District’s principal agent and shall act on the Owner’s behalf through the Program during construction and until the expiration of the warranty period. The Owner’s Representative has the authority to act on behalf of the Owner to the extent expressly authorized in the Contract Documents or otherwise expressed in writing. The Owner’s Representative, with written approval of the Owner, shall have authority to stop the Work whenever such stoppage may be necessary in the Owner’s Representative’s reasonable opinion to ensure the proper execution of the Contract.

30.02 Administration. The Owner’s Representative shall establish and implement procedures for reviewing and processing requests and making recommendations to the Owner and Architect with respect to clarifications and interpretations of the Contract Documents; shop drawings; samples and other submittals; contract schedule adjustments; change order and field order proposals; written proposals for substitutions; payment applications; and the maintenance of logs. Although the Owner shall retain the final authority in decisions regarding such matters, as the Owner’s representative, the Owner’s Representative shall be the party to whom all such information shall be submitted. The Owner’s Representative’s recommendation to the Owner shall relate to design considerations, matters of cost, scheduling and time of construction, and clarity, consistency and coordination of documentation.

30.03 Inspections. The Contractor shall provide timely notice to the Owner, Owner’s Representative and the Architect when inspections are desirable or required by the terms of the Contract or the Architect’s and Owner’s Representative’s agreement with the Owner. Such notice shall be given in order to allow for the following reviews and inspections, among others:

a. Reviewing and approving shop drawings samples, product data and other submissions for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents;

b. Inspection of bearing surfaces of excavations before footings are poured;

c. Inspection of reinforcing steel after installation and before concrete is placed;

d. Inspection of structural and architectural concrete before, during, and after pouring;

e. Evaluation of all laboratory reports;

f. Inspection of structural steel after erection and prior to its being covered or enclosed;

g. Inspection of mechanical work following its installation and prior to its being covered and enclosed;
h. Inspection of electrical work following its installation and prior to its being covered or enclosed; and
i. Inspection of exposed surfaces for compliance with the Construction Documents.

j. Reviewing Project schedules and schedule changes.
k. Reviewing requests for change in the Contract including all change Orders and Field Orders.
l. Reviewing and making recommendations for pay requests.
m. Reviewing certificates and policies of insurance for compliance with the Contract Documents.
n. Inspecting the site for construction observations and supervision and preparing written and photographic documentation.

GC - 31.00  CASH ALLOWANCES

The Contractor shall include in the Contract sum all allowances stated in the Contract Documents. These allowances shall cover the net cost of the materials and equipment delivered and unloaded at the site, and all applicable taxes. The Contractor's handling costs on the site, labor, installation costs, overhead, profit, and other expenses contemplated for the original allowance shall be included in the Contract sum and not in the allowance. The Contractor shall cause the Work covered by these allowances to be performed for such amounts and by such persons as the Owner or Architect may direct through the Owner’s Representative, but it will not be required to employ persons against whom it makes a reasonable objection. If the cost, when determined, is more than or less than the allowance, the Contract sum shall be adjusted accordingly by field order which will include additional handling costs on the site, labor, installation costs, overhead, profit, and other expenses resulting to the Contractor from any increase over the original allowance.

GC - 32.00  USE OF PREMISES

The Contractor shall confine its apparatus, the storage of materials, and the operations of its workers to limits indicated by law, ordinances, permits, and the Contract Documents, and shall not unreasonably encumber the premises with its materials. Contractor shall not place or store any materials, equipment, or other items or goods outside the construction area as designated in the Construction Documents, without prior written approval of the Owner and Owner’s Representative. The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety. The Contractor shall enforce all Owner instructions and other regulations regarding signs, advertisements, fires, and smoking and shall not allow the possession or consumption of alcohol or drugs on the premises by his or any subcontractor’s workers. The Contractor shall limit his construction activities, including material storage, to areas approved by the Owner’s Representative.
GC - 33.00  **CUTTING, PATCHING, AND EXCAVATING**

The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of the subcontractors shown upon, or reasonably implied by, the drawings and specifications for the completed structure.

Any cost caused by defective or improperly timed work shall be borne by the party responsible therefore. The Contractor shall not endanger any work by cutting, excavating, or otherwise altering the Work and shall not cut or alter the Work of any subcontractor except with the consent of the Architect.

The Contractor will ensure that each subcontractor leaves all chases, holes, or openings straight, true, and of proper size in its own work, or cut the same in existing work as may be necessary for the proper installation of its own or another subcontractor’s work consulting with the Owner’s Representative and the Contractor regarding proper location and size of same. In case of its failure to leave or cut same in the proper place, it shall cut them afterward at its own expense. No piers or other structural members shall be cut or modified in the field without the written consent of the Architect and Owner’s Representative. Any extensive cutting of non-structural elements shall also require the Owner’s Representative’s and Architect’s approval. After such work has been installed, it shall carefully fit around, close up, repair, patch, and point up same as directed to the entire satisfaction of the Architect. Each section of this specification shall include all cutting, patching, and excavating for that trade division unless specifically stated to the contrary.

GC - 34.00  **CLEANING UP**

The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by its employees or work, and shall remove all rubbish as often as is necessary or as directed by the Owner, Architect or Owner’s Representative, or as specified elsewhere in these documents. At the completion of the Work, it shall remove all its rubbish from and about the building, and all its tools, scaffolding, and surplus materials and shall wash all glazing and window frames inside and outside throughout the building, removing all stains, paint, etc., on same. Care shall be taken not to scratch the glazing in this clean up.

All doors and wall coverings shall be left thoroughly clean and finished; all walls and ledges shall be dusted; all plumbing fixtures shall be cleaned; all hardware shall be free of all labels, paint, stains, dust, dirt, and the like; all marks, stains, fingerprints, other oil, and dirt shall be removed from painted, decorated, or natural finish work and the building will be ready for occupancy except for being further equipped by the Owner. In case of dispute, the Owner may perform such cleaning up as may be required and charge the cost to the Contractor.

GC - 35.00  **STATUTES, ORDINANCES, AND REGULATIONS**

The Contract shall be governed by the laws of the State of Iowa.

The Contractor and all subcontractors shall comply with all applicable federal and state statutes, rules, regulations, and directives of any governmental body having jurisdiction over the Work to be performed. Should any of the provisions of the Contract Documents be in conflict therewith, then that portion which is in conflict shall be considered stricken and the applicable statute, ordinance, regulation, or ruling substituted therefore. All such cases of apparent conflict coming to the attention of any party shall
immediately be called to the attention of the Owner. The Contractor shall strictly observe and comply with all federal and state laws pertaining to the employment and payment of labor.
GC - 36.00  APPROVAL OF SUBSTITUTIONS

The Contractor will be held to have used in his base proposal and to furnish under the Contract those items of equipment and/or materials which are specifically identified in the specifications by a manufacturer’s name, model, or catalog number. Owner, in its sole discretion, may approve substitution of equipment and/or materials of makes other than those specifically named in the Contract Documents so long as the equipment or material proposed for substitution in the opinion of the Owner is just as suitable as equipment and/or materials named in the specifications so far as performance, construction, efficiency, and utility are concerned.

All requests for substitutions must be submitted in writing at least seven (7) working days prior to the bid opening to the Owner for evaluation and final approval. Contractor’s request shall include a complete listing of the substitutions proposed, with drawings and other data required by Owner, supporting Contract price changes pertaining to each proposed substitution. Contractor shall also furnish drawings or other data required to indicate any modifications which would result from use of the proposed changes and shall furnish general arrangement drawings, full descriptive data, and any other information required to demonstrate that the proposed substitutions are equal to the product(s) specified. The Owner will determine if the proposed substitutions are acceptable or unacceptable and will notify all potential bidders of its decisions no later than five (5) calendar days before bid opening. In the absence of the Owner’s written acceptance, no substitution will be allowed for any items specified in the Contract Documents. Acceptance by the Owner of proposed substitutions shall not relieve Contractor of the responsibility for providing workmanship, materials and equipment meeting quality standards established for the Project. No substitution may be made subsequent to the award of the Contract, except upon Owner’s written approval.

Contractor may offer alternate systems to the ones named in the specifications by submitting with the proposal and on the form provided, identifying data on the system proposed, together with a statement of the amount of addition or deduction from the base bid if the bidder’s alternate is accepted. Prior approval by the Owner is not required on items submitted as alternate bids.

GC - 37.00  OCCUPANCY

The Contractor, upon the Owner’s written request, shall allow the Owner to occupy portions of the Work and to place and install, subject to reasonable restrictions, as much equipment and furnishings during the progress of the Work as is possible without interfering with the progress of the Work. Such occupancy and the placing or installing of equipment and furnishings shall not in any way evidence the completion of the Work or signify the Owner’s acceptance of the Work, or any part of it. Equipment includes such things as kitchen equipment, etc. Furnishings include such things as lockers, benches, desks, etc. Prior to occupancy, the Architect and Owner shall make a thorough inspection accompanied by the Contractor’s superintendent to note any defects in workmanship or materials which are the responsibility of the Contractor. The provisions of the Article shall not be in limitation of the Owner’s rights set forth in Article 18.00.
GC - 38.00  DAMAGE TO UTILITIES

The Contractor shall take adequate precautions to protect existing utilities on and off the site and avoid damage thereto. The Contractor shall repair or replace or have repaired or replaced at his own expense any damage to streets, water, sewer, light, power, cable, or telephone lines, damaged by reason of his work.

The location and extent of underground utilities and cables and conduit as indicated on the drawings are not guaranteed. This information is shown only for such use as bidders and Contractors may choose to make of it. All Contractors shall check with all public utilities companies for locations and shall comply with their regulations regarding their utilities in performing the Work.

Active underground utilities shall be adequately protected from damage and if damaged shall be immediately repaired. Removal or relocation of same shall be done only as indicated on the drawings. If they are in use, they shall be maintained in continuous service. If not indicated on the drawings or not known to exist, the Contractor shall report discovery of such lines to the Architect and shall not proceed further until directed to do so.

Inactive or abandoned utilities, whether or not they are indicated on the drawings, shall be recorded as to location and depth and shall be removed for a distance of not less that three (3) feet from outside line of all concrete work unless otherwise required by regulations. Ends shall be capped or plugged. There will be no adjustment of Contract amount for work due to inactive or abandoned utilities indicated on the drawings.

GC - 39.00  PROJECT SIGN

If required by the specifications, the Contractor shall provide a Project sign in such form and size as may be approved by the Owner. No other advertising is permitted on the Project site.

GC - 40.00  BLASTING

No explosives of any nature except for those normally employed in powder actuated tools, .38 caliber or smaller, shall be employed or used on any site except with the express and specific prior written approval of the Architect and the Owner and any appropriate governmental authorities, in each instance. The Contractor shall notify the Architect of need for such approval three (3) days prior to the proposed use of such explosives.

GC - 41.00  HISTORICAL DATA

In addition to warranties, guarantees, operating instructions, etc., elsewhere specified, the Contractor, at the conclusion of the Work and before final payment is made, shall furnish a listing, giving principal’s names, addresses, and telephone numbers of all subcontractors and material suppliers who furnished labor or materials on the job with identification of the services rendered. There shall be provided one (1) copy to the Owner’s Representative, one (1) copy to the Architect and three (3) copies to the Owner. All copies will be delivered to the Owner’s Representative for review and distribution.
GC - 42.00 TESTING OF BUILDING SYSTEMS (COMMISSIONING)

The Contractor shall submit a written plan prior to completion and acceptance, consistent with the Contract Documents and applicable codes, for the testing of all building systems. All testing shall be of the complete system, before covering, or of individually separable larger portions of the system and shall be performed in the presence of the appropriate consultant and representative of the Owner. A written report shall be filed in the office of Facility Management, Des Moines Independent Community School District, recording each test, and signed by such consultant.

GC - 43.00 TEMPORARY OR TRIAL USAGE

Temporary or trial usage by the Owner of any mechanical device, machinery, apparatus, equipment, or any work or material supplied under the Contract before final completion and written acceptance by the Architect shall not be construed as evidence of the Architect's or Owner's acceptance of same or the commencement of any warranty periods.

The Owner has the privilege of such temporary or trial usage, for such reasonable time as the Owner and the Architect deem proper. The Contractor shall make no claim for damage or injury to or breaking of any parts of such work which may be caused by weakness or inaccuracy of structural parts or by defective materials or workmanship.

If the Contractor so elects, it may, without cost to the Owner, make such trial usage. However, trials shall only be conducted with the Architect’s prior approval and under the Architect’s observation.

When heating, air conditioning, ventilating, exhaust, or other items of electrical or other equipment are installed, it shall be the responsibility of the Contractor installing such equipment to operate it for a satisfactory period of time as required by the Architect for proper testing of the equipment and instructing the Owner’s operating personnel. All items of equipment, testing meters, testing instruments, and incidentals required for proper testing and for instructing the Owner’s operating personnel, shall be provided by the Contractor responsible for providing and installing the equipment.

GC - 44.00 ASSIGNMENT

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

GC - 45.00 SEPARATE CONTRACTS

The Owner reserves the right to let other contracts in connection with this Work. The Contractor shall afford such other Contractors’ reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs.

If any part of the Contractor’s work depends for proper execution or results upon the Work of any other Contractor, the Contractor shall inspect and promptly report to the Owner through the Owner’s Representative any defects in such work that render it unsuitable for such proper execution and results. Its failure to inspect and report shall constitute an acceptance of the other Contractor’s work as fit and proper for the reception of his work, except as to defects which may develop in the other Contractor's work after the execution of its work.
To ensure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report to the Owner through the Architect any discrepancy between the executed work and the drawings.

**GC - 46.00 CONTRACTORS’ MUTUAL RESPONSIBILITY**

The entire Project may be covered by more than one contract and in such case there will of necessity be a certain overlapping of contracts. Each Contractor shall, therefore, take due notice of the Work called for in contracts other than his own. Should the Contractor cause damage to any separate Contractor on the Work, the Contractor agrees, upon due notice, to settle with such other separate Contractor by agreement, if it will so settle. If such other separate Contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner may notify the Contractor, who shall, at the Owner’s option, defend such proceedings at the Contractor’s expense or reimburse the Owner for the expenses incurred in defense, and, if any judgment against the Owner arises therefrom, the Contractor shall pay or satisfy it and pay all costs and expenses thereby incurred by the Owner.

**GC - 47.00 LIENS**

It is hereby mutually understood by and between the parties hereto that no Contractor, subcontractor, materialman, vendee, laborer, mechanic, or other person, can or will contract for or in any other manner have or acquire any lien upon the building or works covered by this Contract, or the land upon which the same is situated.

**GC - 48.00 WORK IN EXISTING BUILDING**

In addition to all other requirements of the Contract Documents, if the Work involves an addition to an existing building, the Contractor shall erect and maintain during the progress of the Work, suitable dust-proof partitions to protect such building and the occupants thereof. If necessary in the Owner’s, Owner’s Representative’s or Contractor’s judgment, or pursuant to manufacturer’s directives or recommendations in order to protect occupants from noxious fumes, odors, or hazardous substances, the Contractor may be required to provide additional ventilation and/or work different or extended hours to avoid disruption to other activities within the existing building.

If any portions of an existing building are to be remodeled or repaired, such portions shall be adequately partitioned off with dust-proof partitions and well ventilated. Contractor’s personnel shall not access areas still in use by the Owner without prior, written authorization. All remodeling work shall be scheduled and submitted to the Owner and Owner’s Representative for approval. The various Contractors shall schedule their work jointly, in order that each may accomplish his work within such existing building in an orderly fashion during regular school vacation periods, where possible, or in such a manner as to permit full use of the building and without impairment of any existing facilities.

During the course of construction the Contractor shall maintain free and unimpeded all required exits from the building. Barricades shall be so erected that traffic is separated and protected from the construction. Such exits shall not be closed at any time for any reason while the building is occupied nor at any time when the building is unoccupied except after written approval is given by the Owner and proper warning and directional signs are posted.
GC - 49.00  **INDEMNIFICATION**

The Contractor shall indemnify and hold the Owner and the Architect and their agents and employees harmless from and against all claims, damages, losses, and expenses, including attorneys’ fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the Work itself and including the loss of use resulting therefrom but only to the extent caused by any negligent or intentional act or omission or breach of contract 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, regardless of whether or not it is caused in part by a party indemnified hereunder. This specific indemnification by the Contractor is in addition to and not in lieu of other remedies which may be available to the Owner.

Contractor agrees to indemnify and hold harmless the District and their agents and employees from and against all claims, damages, losses and expenses, including attorneys’ fees, arising out of or resulting from a breach of cybersecurity or other cyber fraud incident affecting Contractor that results in the disclosure of the District’s financial or other confidential information to any unauthorized person or misuse of the District’s financial or other confidential information by any unauthorized person. This specific indemnification by Contractor is in addition to and not in lieu of other remedies which may be available to the District.

The obligations of the Contractor under this Article shall not extend to and will be reduced by the liability of the Architect or the Architect’s Consultants to the extent directly attributable to and proximately caused by (A) the negligent preparation or approval of drawings or specifications, or (B) errors or omissions in written directions or instructions given by the Architect or the Architect’s Consultants.

GC - 50.00  **LIQUIDATED DAMAGES FOR DELAY IN COMPLETION**

It is understood and agreed that completion of the entire Project within the time stated in the Contract Agreement is a matter of vital necessity to the Owner, that the Owner will suffer substantial damages if the entire Project is not completed within that time, and that it would not be possible to accurately determine the amount of such damages. In view of these facts, if imposed by the Owner, the Contractor agrees to pay the Owner liquidated damages in the sum set forth in the Construction Agreement for each calendar day, if any, which elapses between the dates stated in the Construction Agreement for either or both Substantial Completion and Final Completion, as extended by any extensions of time under the provisions of the General Conditions of the Contract. If the Contractor shall fail to pay such liquidated damages, if imposed, promptly upon demand therefore, the surety on his performance bond shall pay such damages. Also, the Owner may withhold all or any part of such liquidated damages from any payments due the Contractor. No changes in the Work shall extend the time for completion unless set forth on a properly approved field order/change order. Document titled “Schedules and Liquidated Damages” shall determine if and at what amount liquidated damages will be imposed on the Project.

GC – 51.00  **SUBSTANTIAL COMPLETION**

When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete, the Contractor shall prepare for the Owner a list of items to be completed or corrected and submit it to the Owner’s Representative. The list shall include written
warranties and related documents required by the Contract and assembled by the Contractor. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect and the Owner’s Representative, on the basis of an inspection, jointly determine that the Work or designated portion thereof is substantially complete, the Architect and Owner’s Representative will then prepare a Statement of Responsibilities of the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the date of occupancy of the Work or designated portion thereof by the Owner unless otherwise provided in the Statement of Responsibilities. The Statement of Responsibilities shall be submitted to the Owner and the Contractor for his written acceptance of the responsibilities assigned in such Statement.

**GC—52 REQUEST FOR EARLY RELEASE OF RETAINED FUNDS**

Upon achieving Substantial Completion, the Contractor may formally request the release of all or part of the retained funds being held on the Project. The Contractor’s request for Release of Retained Funds shall be accompanied by the required sworn statement that ten (10) calendar days prior to filing the Request for Release of Retained Funds the required sworn statement was given to all known subcontractors, sub-subcontractors and suppliers that the Contractor is requesting the early release of retained funds. If proper documentation is received from the Contractor, the Owner will release the requested funds at the next monthly Board meeting of within thirty (30) days, whichever is less, except it may retain the following:

a) An amount equal to 200% of the value of labor and materials yet to be provided on the Project, which will include the value of the itemized costs for closeout phase items of the Project as listed in Section 01705 of the documents and other items as determined by the Owner and its authorized Contract representative.

b) An amount equal to 200% of the value of any Chapter 573 claims currently on file at the time the Request for Release of Retainage Funds is approved.

If the Owner withholds an amount from the retainage payment to the Contractor, the Owner will provide a reason the request is being denied the Contractor within thirty (30) calendar days of the receipt of the request.

Approval of early release of retained funds will be made by Resolution of Owner’s Board of Directors. The Request will be presented to the Board of Directors for acceptance when:

1) All Work, under the request has been certified as finally and satisfactorily completed;

2) All Work, under the request has been inspected and approved by the Owner’s representative;

3) the Contractor has certified to the Owner that the materials, labor, and services involved in each Application for Payment have been paid in accordance with the Contract Documents; and
4) Documents as outlined in Section 01705 “Early Release of Retained Funds” including, but not limited to, the following documents have been completed and received by the Owner:

- Request for Release of Retained Funds - DMDSFM - -----  
- Notice of Contractor’s Request for Early Release of Retained Funds  
- Consent of Surety to Early Release of Retained Funds

**GC - 53.00 ACCEPTANCE AND FINAL PAYMENT**

Within a reasonable time after final completion of the Work and before Final Acceptance thereof, a final inspection shall be made by the Architect to determine whether the Work has been completed in accordance with the Contract Documents. A written Report of Inspection and detailed “punch list,” certified as to contents and date of inspection, shall be completed by the Architect and delivered or mailed to the Contractor.

All prior Requests for Payment shall be subject to correction in the final Request for Payment.

The balance remaining due the Contractor, if any, following Final Acceptance will be paid not earlier than thirty-one (31) days from the date of Final Acceptance of said work by the Owner, subject to the conditions and in accordance with the provision of Chapter 573 of the Code of Iowa.

Final Acceptance of the Work will be made by Resolution of Owner’s Board of Directors. The Work will be presented to the Board of Directors for Final Acceptance when:

1) All Work, including the punch list, has been certified as finally and satisfactorily completed;

2) All Work, including the punch list, has been inspected and approved by the Owner’s representative;

3) the Contractor has certified to the Owner that the materials, labor, and services involved in each Application for Payment have been paid in Accordance with the Contract Documents; and

4) Documents as outlined in Section 01700 “Contract Closeout”, including, but not limited to, the following documents have been received by the Owners:
   - Application for and Certification of Payment - DMPSFM-600
   - Itemization Sheet for Final Payment - DMPSFM-610
   - Certificate of Completion - DMPSFM-620
   - Contractor’s Affidavit of Payment of Debts & Claims - DMPSFM-630
   - Contractor’s Affidavit of Release of Liens - DMPSFM-640
   - Consent of Surety Company to Final Payment - DMPSFM-650
   - Architect’s Certificate of Specifications - DMPSFM-660
Lien Waivers

Required Guarantees

If any unpaid claim for such labor, materials, supplies, or equipment is filed with the Owner before payment in full of all sums due the Contractor, the Owner shall withhold from the final payment sufficient funds, if available and in accordance with Iowa Code Chapter 573, as amended, to provide for the payment of such claim, until the same shall have been paid or withdrawn. Such payment or withdrawal shall be evidenced by filing with the Owner a receipt in full or an order authorizing withdrawal signed by the claimant or his duly authorized agent or assignee.

If a claim under Iowa Chapter 573 is filed against the Owner, the Contractor agrees to defend, indemnify, hold harmless and/or reimburse the Owner from, against and for any and all damages, settlements, payments or expenses, (including reasonable attorneys fees) incurred by the Owner on account of any and all claims filed against the Project as a direct result of the Contractor.

If any claim for such labor, materials, supplies, or equipment remains unsatisfied after all payments are made by the Owner to the Contractor, the Contractor shall refund to the Owner all sums which the latter may for any reason be compelled to pay to satisfy such claim, including all costs and attorneys’ fees incurred by the Owner as a result of the Contractor's default in such respect.

The making and acceptance of the final payment shall not constitute a waiver of any claims by the Owner, including, among other things, those arising from unpaid claims, from faulty work which appears before or after final payment, or from any failure to comply with any requirements of the Contract Documents.

GC – 54.00 Warranties on Portions of the Work

The Contractor shall, in case of work performed or materials or equipment provided for which warranties are required by the Contract Documents, secure the required warranties and deliver copies thereof to the Architect and the Owner upon completion of the Work. All such warranties shall commence from the date set forth in the Certificate of Substantial Completion and will not in any way reduce the Contractor’s responsibilities under his Contract. Whenever guarantees or warranties are required by the specifications for a longer period than one year, such longer period shall govern.

Contractor shall provide Owner with an acceptable maintenance bond at the time of Final Acceptance. Maintenance guarantee shall run for one (1) year from the time of acceptance to protect Owner from faulty workmanship and materials as outlined in the preceding paragraph.

GC - 55.00 Contractor’s Project Guarantee After Completion

The Contractor expressly warrants and guarantees that the Project will be constructed in a good, firm, substantial workmanlike manner; free from structural and workmanship defects and defects in materials; and that the improvements will be fit for occupancy and built in strict compliance with contract documents.

Neither the Architect’s approval of the final Request for Payment nor payment of any Request for Payment or of any sum previously withheld from the Contractor shall relieve the Contractor of responsibility for its warranty and guarantee hereunder or for faulty materials or workmanship, and,
unless otherwise agreed, it unconditionally agrees to remedy any defects due thereto, and pay for any damages resulting therefrom, which shall appear within a period of one (1) year from the date set forth in the Letter of Acceptance of his work. The Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to the Owner, without expense to the Owner, within ten (10) days after written notification by the Owner of such defect. If said repairs or replacements or mutually satisfactory arrangements have not been made within ten (10) days, the Owner shall make said repairs or replacements and charge the cost to the Contractor.

The Owner, the Architect, and the Contractor together shall make at least one (1) complete inspection of the Work after the Work has been accepted by the Architect and the Owner. Such inspection shall be made approximately eleven (11) months after the acceptance of the Work. The Architect shall make a written report of the inspection, certified as to contents and date of inspection, and forward the report by mail to the Owner and the Contractor within seven (7) days after completion of the inspections. The Contractor shall immediately initiate such remedial work as may be necessary to correct any deficiencies or defective work shown by this report and shall promptly complete all such remedial work in a satisfactory manner.

If the Contractor fails to promptly correct deficiencies and defects shown by the report within ten (10) days after notice thereof, the Owner may do so. The Owner shall be entitled to collect from the Contractor all costs and expenses incurred in correcting such deficiencies and defects, as well as all damages resulting from such deficiencies and defects. The guarantee and warranties of the Contractor provided for herein are in addition to and not in lieu of any other remedies available to the Owner.

**GC - 56.00 SOIL TEST REPORT**

The Owner has arranged for a separate consultant to conduct field and laboratory soil investigations on the site and to prepare a report of the findings. Such reports, as appropriate, are included as an attachment to the specification. Such data is offered solely for reference and is not to be considered a part of the Contract Documents. The data contained in any such document prepared for the Owner by a separate consultant is believed to be reliable; however, the Owner and Architect do not guarantee its accuracy or completeness. All applicable subcontractors shall be fully familiar with the contents of such reports, if prepared, and shall consider and evaluate them in the performance of their contracts.

**GC - 57.00 EXPEDITING MATERIALS**

The Contractor shall exercise due diligence in seeing that all equipment, materials, and supplies are ordered and delivered well in advance of the time they are needed on the job; and it shall properly store and protect same at his expense and in accordance with these General Conditions, either at the site or elsewhere as approved by the Architect. It shall, when requested, submit to the Architect evidence that such orders have been placed and/or received.

**GC - 58.00 MISCELLANEOUS KEYS, SWITCHES, ETC.**

Except as otherwise specifically required by the Technical Specifications at the completion of the Project, all loose keys for hose bibs, adjustment keys and wrenches for door closers and panic hardware, keys for electric switches, electrical panels, and all other equipment shall be identified and accounted for and turned over to the Architect for transmittal to the Owner.
GC - 59.00       ELECTRONIC COMMUNICATIONS

If required by the Contract Documents, the Contractor shall use the Internet based Project Management system for communications and tracking of the Project. The system shall be used to keep comprehensive account of Project activities, conditions and issues including, but not necessarily limited to, general correspondence, reports, drawings, drawing submittals and drawing schedules, submittals, shop drawings, payment requests, transmittals, change request, and authorization, meeting minutes, confirmation of oral instruction, notice of non-conforming work, press photographs, call-back requests, and other documentation as may be specified by the Owner. The Contractor shall have access to the program established at their main office as well as the Project site. There is no fee associated with the use of the Internet based Project Management System.
The following supplements modify, change, delete from or add to the General Conditions of the Contract for Construction. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph, or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect.

END OF DOCUMENT
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Project description.
   2. Work by Owner.
   3. District Furnished Products.
   4. Contractor’s Use of Site and Premises.
   5. Surrounding Site Condition Survey.
   6. Work Sequence.
   7. District Occupancy.

1.2 PROJECT DESCRIPTION

A. Location: The site is located at 1610 SE 6th Street; Des Moines, Iowa 50312

B. The project includes classroom casework replacement and installation of a new grease interceptor, as reflected in the construction documents.

1.3 WORK BY OWNER

A. Items noted "NIC" (Not in Contract), will be furnished and installed by others separately from the work included in these Bid Packages.

1.4 DISTRICT FURNISHED PRODUCTS

A. Products furnished by the District and installed by the Contractor. Refer to drawings for these items.

B. District’s Responsibilities:
   1. Arrange and pay for owner furnished product delivery to site. (Verify for each item)
   2. On delivery, inspect products jointly with Contractor.
   3. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   4. Maintain manufacturer's warranties, inspections and service.
   5. Obtain receipt for materials delivered to Contractor.

C. Contractor’s Responsibilities:
   1. Receive and unload products at site; inspect for completeness or damage, jointly with District.
   2. Handle, store, install and finish products.
   3. Repair or replace items damaged after receipt.

1.5 CONTRACTOR USE OF SITE AND PREMISES

A. Limit use of site and premises to allow:
1. District use of the existing building during the construction period.

2. Work by other contractors and work by District.

3. Safe use of site and premises by public.

4. Contractor and subcontractor employees’ use of areas outside construction zone is restricted.

B. Coordinate use of premises under direction of the Owner.

C. Notify Owner in advance of a shutdown of utilities or work outside designated construction and staging areas. Coordinate such work with Owner. All utility shutdowns shall be approved by the Owner.

1.6 SURROUNDING SITE CONDITION SURVEY

A. Prior to commencement of work, the Contractor, the Owner and the Architect shall jointly survey the site and existing buildings, paving, plant life, and other items, noting and recording existing damage such as cracks, sags, loose blocks or bricks, unhealthy plant life, and other damage.

B. This record shall serve as a basis for determination of subsequent damage to these items due to settlement or movement due to demolition and construction operations.

C. Such damage, as noted, shall be suitably marked on the item, if possible, and the official record of existing damage shall be signed by the parties making the survey.

D. Cracks, sags, or other damage to the site and adjacent buildings, paving, plant life, and other items not noted in the original survey, but subsequently observed shall be reported immediately to the Owner in writing.

1.7 WORK SEQUENCE

A. Construct work in phases to accommodate District requirements during the construction period. Coordinate construction schedule and operations with the Owner. Sequencing is listed in Section 00210.

1.8 DISTRICT OCCUPANCY

A. The District will occupy the existing building during the construction period.

B. Time is of the essence.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Procedures for preparation and submittal of Applications for Payment.

B. Related Sections:
   3. Section 01300 - Submittals: Submittal procedures.
   4. Section 01700 - Contract Closeout: Final Payment.
   5. Document 00800 - Supplementary Conditions

1.2 SCHEDULE OF VALUES

A. Submit to the Owner’s Representative a Schedule of Values allocated to the various portions of the Work broken down by building and trade, supported by data to substantiate its accuracy as the Owner’s Representative, Architect, and the Owner may require. This schedule, when approved, shall be used as a basis for the Contractor's application for payment.

B. Sample of the Schedule of Values format follows this section. All line items shall be separated into labor and material components. A separate line item shall be included in the Schedule of Values for the Contractors Overhead and Profit.

C. Schedule of Values must be submitted, reviewed and approved by the Owner’s Representative and Architect prior to the first Application for Payment.

1.3 FORMAT

A. Sample of the Application for Payment form follows this Section and is titled "Application and Certification for Payment". Electronic emailed copies of payment applications will be used.

1.4 PREPARATION OF APPLICATIONS

A. Applications shall be prepared in two copies.

B. Contractor to meet with Owner’s Representative and Architect at regular job progress meeting to review proposed Application for Payment.

C. Application as tentatively approved by Owner’s Representative and Architect shall be submitted.

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

E. Submit back-up documentation to support Application for Payment as may be requested by the Architect or Owner’s Representative.

F. Architect will review Project Record Documents at each billing meeting. Status of Project Record Documents will be considered in evaluating proposed monthly billings.

G. List each authorized Change Order as an extension on the Schedule of Values, listing Change
Order number and dollar amount as for an original item of Work.

H. Prepare Application for Final Payment as specified in Section 01700.

I. Prepare and submit with each Application for Payment the List of Potential Claims that follows this section per the requirements of paragraph G.C. – 18.01 of the General Conditions, Section 00700.

J. Prepare requests and accompanying sworn statement for early release of retained funds upon Substantial Completion as specified in Section 01705 “Early Release of Retained Funds”

1.5 SUBMITTAL PROCEDURES

A. All submittals associated with the Application for Payment shall be done in one copy.

B. Submit an updated construction schedule with each Application for Payment.

C. Payment Period: Submit at monthly intervals as coordinated by the Owner’s Representative.

D. Submit substantiating data as may be required.

E. Submit wavers on the form approved by the Owner’s Representative.

F. Submit list of potential claims.

1.6 SUBSTANTIATING DATA

A. When Owner’s Representative requires substantiating information, submit data justifying dollar amounts in question.

B. Provide one copy of data with cover letter for each copy of submittal. Show Application number, date, and line item by number and description.

C. When Application for Payment is requesting payment for stored materials the following information shall be submitted:

1. Letter transferring ownership of material stored off site.

2. Insurance certificate covering material stored off site.

3. Invoice from supplier confirming cost of all stored material, whether on or off site.

1.7 PAYMENT PERIOD

A. If the Contractor has made a request for payment as stated above, the District will, with reasonable promptness, issue payments to the Contractor on the next standard monthly payment schedule, for such amount as the District, Architect, and Owner’s Representative determine to be properly due. If there are no problems with that month’s progress billing, reimbursement for compensation shall be paid to the Contractor no later than thirty (30) days from the approved progress billing.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF DOCUMENT
LIST OF POTENTIAL CLAIMS

To: Des Moines Public Schools
From:

PROJECT NAME: McKinley Classroom Casework & Grease Interceptor
Bid Number: B8749

Check one of the following:

Yes, we have the following listed potential claims for the contract period listed above. (List below or on additional sheets the potential claims for this contract period. Include description of potential claim and a potential estimated cost.)

No, we do not have any potential claims for the contract period listed above.

(Signature) (Date)

(Printed Name)

(Title)
APPLICATION AND CERTIFICATE FOR PAYMENT

Des Moines Public Schools: PROJECT: APPLICATION NO.: DISTRIBUTION TO:
1917 Dean Avenue PROJECT NO.: PERIOD TO: DMPS & Architect
Des Moines, IA 50316
FROM CONTRACTOR: VIA ARCHITECT: CONTRACT DATE:

CONTRACTOR’S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM $ -

2. Net change by Change Orders $ -

3. CONTRACT SUM TO DATE (Line 1 +/- 2) $ -

4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) $ -

5. RETAINAGE:
   a. 10% of Completed Work $0.00
      (Columns D + E on G703)
   b. 1% of Stored Material $0.00
      (Column F on G703)

Total Retainage (Line 5a + 5b or Total in Column I of G703) $0.00

6. TOTAL EARNED LESS RETAINAGE $ -

   (Line 4 less Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAY $ -

   (Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE $0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE $ -

   (Line 3 less Line 6)

CHANGE ORDER SUMMARY

<table>
<thead>
<tr>
<th>CHANGE ORDER SUMMARY</th>
<th>ADDITIONS</th>
<th>DEDUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total changes approved in previous months by Owner $</td>
<td>- $</td>
<td>-</td>
</tr>
<tr>
<td>Total approved this Month $</td>
<td>- $</td>
<td>-</td>
</tr>
<tr>
<td>TOTALS $</td>
<td>- $</td>
<td>-</td>
</tr>
<tr>
<td>NET CHANGES by Change Order $</td>
<td>- $</td>
<td>-</td>
</tr>
</tbody>
</table>

The undersigned Contractor certifies that to the of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: ________________________________ Date: ____________

State of: ______________ County of: ______________

Subscribed and sworn to before me this ___ day of Month, 201_

Notary Public: My Commission expires: __________________________

ARCHITECT’S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $ -

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:

By: ________________________________ Date: ____________

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this contract.

CAUTION: You should use an original AIA document which has this caution printed in red. An original assures that changes will not be obscured as may occur when documents are reproduced.
## AIA Document G703

**Application and Certificate for Payment**

**Table:**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION OF WORK</th>
</tr>
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**Columns:**

- **A**: Item No.
- **B**: Description of Work
- **C**: Scheduled Value
- **D**: Work Completed
- **E**: Materials
- **F**: Total Completed and Stored to Date
- **G**: Materials Presently Stored
- **H**: Balance to Finish (C - G)
- **I**: Retainage

**Columns Values:**

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**Project Total:**

| PROJECT TOTAL | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |

**Notes:**

- Column I on Contracts where variable retainage for line items may apply.
- Amounts are stated to the nearest dollar.
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Submittals.
   3. Change procedures.
   4. Execution of change orders.
   5. Correlation of Contractor submittals.

B. Related Sections
   2. Section 01300 - Submittals.

1.15 DEFINITIONS

The following definitions shall be used in establishing prices for change orders:

A. “Price” is the direct cost of material, labor, equipment, insurance, bond, and subcontract costs, plus profit and overhead.

B. “Cost” is the direct expense for material, labor, equipment, insurance, bond, and subcontract costs.

C. “Direct expense” is the Contractor’s actual cost of any item that is required for the completion of his Contract obligation (i.e., tool rental, material, equipment, etc.).

D. “Overhead” is a business expense created by the project, but not necessarily a direct part of that portion of the work involved (i.e., small tools, project management, (including job site superintendent, administrative support, etc.).

E. “Profit” is the compensation accruing to the Contractor for the assumption of risk in a business enterprise.

1.2 SUBMITTALS

A. Submit name of the individual authorized to receive change documents and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. Field Order Request Forms: Forms approved by the Owner’s Representative and Owner.

C. Approved Forms are attached to this Section.

D. FIELD ORDER REQUESTS MUST BE SUBMITTED IN WRITING WITHIN TEN (10) DAYS FROM THE DATE THE CONTRACTOR HAS KNOWLEDGE OF THE PROPOSED CHANGE.

1.3 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

A. Furnish a proposal for a Field Order Request containing a price breakdown, itemized as required by the Owner’s Representative. The breakdown shall be in sufficient detail to
permit an analysis of all direct costs, such as material, labor, equipment, insurance, bond, and subcontract costs. Any amount claimed for subcontracts shall be supported by a similar price breakdown.

B. Maintain detailed records of work done on a time and material basis. Provide a complete description of the proposed change together with complete information required for evaluation and to substantiate costs of all changes in the Work.

C. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

D. Provide additional data to support computations for each request:
   1. Quantity of products, labor and equipment.
   2. Taxes, insurance and bonds.
   3. Justification for any change in Contract Time. (Applies to critical path items only)
   4. Credit for deletions from Contract, similarly documented.

E. Support each claim for additional costs, and for work done on a time and material basis, with additional information:
   1. Origin and date of claim.
   2. Dates and times work was performed, and by whom.
   3. Time records and wage rates paid.
   4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.4 PROFIT & OVERHEAD MARK-UP FOR FIELD ORDERS AND CHANGE ORDERS

A. The profit and overhead mark-up on costs for all change orders shall NOT EXCEED the following:
   1. Fifteen (15) percent maximum mark-up for overhead and profit for Work directly performed by employees of the Contractor, Subcontractor or Sub-Subcontractor.
   2. Five (5) percent maximum Contractor’s mark-up for overhead and profit for Work performed or passed through by a Subcontractor and passed through to the Owner by the Contractor.
   3. Five (5) percent maximum Subcontractor’s mark-up for overhead and profit for Work performed or passed through by a Sub-Subcontractor and passed through to the Owner by the Subcontractor and Contractor.
   4. Regardless of the above, the maximum allowable total mark-up for all tiers of contractors shall be twenty (20) percent passed through to the Owner by the Prime Contractor under any circumstances.

1.5 CHANGE PROCEDURES – FIELD ORDERS & CHANGE ORDERS

A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time by issuing supplemental instructions.

B. The Owner’s Representative may issue a Field Order Request which includes a detailed description of a proposed change with supplementary or revised Drawings and
Specifications, a change in Contract Time for executing the change, and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit an estimate within 10 days.

C. The Contractor may propose a change by submitting a request for change to the Owner’s Representative 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.

D. For any potential claims, the Contractor must fill out a Potential Claim Form with each monthly Pay Application. See paragraph 18.01 of the General Conditions and Section 01027 – Application for Payment

1.5 EXECUTION OF FIELD ORDERS
   A. Upon the Owner’s approval of a Field Order Request (FOR), it will act as the authorization for the Contractor to proceed with the change.
   B. Field Order Requests are executed for any change up to 15% of contract amount and are approved by the District’s Chief Operating Officer.
   C. If Total of all FORs exceed 15% of the total contract value, the school board will be notified and any changes beyond this point are presented to the school board for approval.

1.6 CORRELATION OF CONTRACTOR SUBMITTALS
   A. Contractor will promptly revise Schedule of Values and Application for Payment forms to record each authorized Field Order Request as a separate line item and adjust the Contract Sum.
   B. Promptly revise progress schedules to reflect any changes in Contract Time, revise sub-schedules to adjust time for other items of work affected by the change, and resubmit.
   C. Promptly enter changes in Project Record Documents.

PART 2 - PRODUCTS
   Not used

PART 3 - EXECUTION
   Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Submission procedures.
B. Documentation of changes to Contract Sum and Contract Time.

1.2 RELATED SECTIONS

A. Document 00310 - Proposal: Schedule of Bid Alternates.
B. Document 00510 - Agreement Form: Incorporating monetary value of accepted Alternates.
C. Document 00100 - Instructions To Bidders: Requirements for Alternates.
D. Section 01310 - Progress Schedules: Work schedule affected by Alternates.
E. Section 01600 - Material and Equipment: Product options and substitutions.

1.3 REQUIREMENTS

A. Submit Alternates with full description of the proposed Alternate and the affect on adjacent or related components.
B. Alternates quoted on Proposal Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.4 SELECTION AND AWARD OF ALTERNATIVES

A. Indicate variation of Bid Price for Alternates described below and list in Proposal Form or any supplement to it which requests a 'difference' in Bid Price by adding to or deducting from the base bid price.
B. Bid may be evaluated on base bid price, Consideration may be given to Alternates and Bid Price adjustments.

1.5 SCHEDULE OF ALTERNATES

ALTERNATE 1: COMBINE CLASSROOM #211 AND CLASSROOM #212 INTO A LARGER CLASSROOM.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

END OF SECTION
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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Coordination
   2. Pre-construction Meeting
   3. Project Meetings
   4. Pre-installation Conferences
   5. Electrical and Mechanical Coordination
   6. Coordination with Work by District
   7. Special Meetings
   8. Coordination of Contract Closeout

1.2 COORDINATION

A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of Work, with provisions for accommodating items to be installed later and for accommodating items to be installed by the District and other Contractors.

B. Resolve differences or disputes concerning coordination, interference, or extent of work of the various sections of the specifications. Contractor's decisions if consistent with the requirements of the Contract Documents shall be final.

C. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.

D. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and affect on work of other sections.

E. Coordinate sequence of work to accommodate District occupancy as specified in Section 01010.

F. Coordinate work so that work within telecom rooms is the first work done when a new trade comes on-site.

1.3 PRE-CONSTRUCTION MEETING

A. The Owner's Representative will schedule a conference after Notice of Contract Award and prior to the start of Work.

B. Attendance Required: Owner, Architect, Owner's Representative, Contractor, and others as appropriate.

C. Agenda:
   1. Submission of executed bonds and insurance certificates.
3. Submission of Schedule of Values, and progress schedule.

4. Designation of personnel representing the parties in Contract, the Owner’s Representative, and the Architect.

5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract Closeout procedures.

1.4 PROJECT MEETINGS

A. The Owner’s Representative will schedule and administer meetings throughout progress of the Work at weekly intervals or as designated.

B. The Owner’s Representative will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, receive minutes from the Architect, and distribute copies within two days to Contractor, Architect, Owner, participants and those affected by decisions made. Architect will record minutes in an approved format within 2 days and deliver to Owner’s Representative. In the event Architect does not provide minutes within 48 hours, the Owner’s Representative may prepare minutes.

C. Attendance Required: Project Manager, job superintendent, major Subcontractors, suppliers and others as appropriate to agenda topics for each meeting.

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 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 each succeeding work period.
   9. Coordination of projected progress.
  10. Maintenance of quality standards and work standards.
  11. Effect of proposed changes on progress schedule and coordination.
  12. Other business relating to Work.

1.5 PRE-INSTALLATION CONFERENCES

A. The Contractor will convene pre-installation conferences when required by individual Section of the Specifications. Include affected parties including the owner’s representative and the Architect/Engineer.

1.6 ELECTRICAL AND MECHANICAL COORDINATION

A. Coordinate use of project space and sequence of installation of mechanical and electrical work that is indicated diagrammatically on Drawings. Follow routings shown for pipes,
ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

B. Use large scale drawings, if their preparation is required as part of work of Division 15 - Mechanical, and Division 16 - Electrical, of these specifications, together with shop drawings and layout drawings of other affected sections of these specifications to check, coordinate and integrate the work of various sections to prevent interferences.

C. Perform and complete checking and coordination before commencing construction in the affected areas.

D. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.7 COORDINATION WITH WORK BY DISTRICT

A. Coordinate service connections for District furnished and District installed equipment. Verify that service connections are correct sizes and in required locations.

B. Coordinate support and anchorage for equipment furnished and installed by the District. Provide blocking and backing as shown or directed to facilitate installation of equipment by others.

1.8 SPECIAL MEETINGS

A. The Owner’s Representative may call special meetings at any time during the course of the project. Special project meetings, if deemed necessary, shall include representatives of the Contractor and subcontractors as required by the Owner’s Representative.

1.9 COORDINATION OF CONTRACT CLOSEOUT

A. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion.

B. After District occupancy of premises, coordinate access to site by the various construction trades for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of District’s activities.

C. Assemble and coordinate closeout submittals.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES
A. Requirements and limitations for cutting and patching of work.

1.2 RELATED SECTIONS
A. Section 01010 - Summary of Work: Work by District or by separate contractors.
B. Section 01120 - Alteration Project Procedures: Cutting and patching for alteration work.
C. Section 01300 - Submittals.
D. Section 01630 - Product Options and Substitutions.
E. Individual Product Specification Sections:
   1. Cutting and patching incidental to work of the section.
   2. Advance notification to other sections of openings required in work of those sections.
   3. Limitations on cutting structural members.

1.3 SUBMITTALS
A. Submit written request in advance of cutting or alteration which 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.
   5. Work by District or by separate contractor.
B. Include in request:
   1. Identification of project.
   2. Location and description of affected work.
   3. Necessity for cutting or alteration.
   4. Description of proposed work, and products to be used.
   5. Alternatives to cutting and patching.
   6. Effect on work of District or separate contractor.
   7. Written permission of affected separate contractor.
   8. Date and time work will be executed.

1.4 QUALITY ASSURANCE
A. Patching shall achieve security, strength, weather protection and continuity of fire ratings, as applicable.
B. Patching shall successfully duplicate undisturbed adjacent finishes, colors, textures, and profiles. Where there is a dispute as to whether duplication is successful or has been
achieved to a reasonable degree, the Architect's judgment shall be final.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching.
B. After uncovering existing work, inspect conditions affecting performance of work.
C. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the work. Provide devices and methods to protect other portions of project from damage.
B. Provide protection from elements for areas which may be exposed by uncovering work.
C. Maintain excavations free of water.

3.3 CUTTING AND PATCHING

A. Execute cutting, fitting, and patching including excavation and fill to complete work.
B. Fit products together, to integrate with other work.
C. Uncover work to install ill-timed work.
D. Remove and replace defective or non-conforming work.
E. Remove samples of installed work for testing when requested.
F. Provide openings in the work for penetration of mechanical, electrical and other work.

3.4 PERFORMANCE

A. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing.
B. Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements and sight-exposed surfaces installed as work of this Contract.
C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
D. Restore work with new products in accordance with requirements of Contract Documents.
E. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
F. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of the penetrated element.
G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit. Painted surfaces shall not present a spotty, touched-up appearance.

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES
   A. Quality control.
   B. Surveying services.
   C. Project record documents.

1.2 RELATED SECTIONS
   A. General Conditions: Benchmarks, Monuments, Statues and Measurements. GC-13
   B. Section 01700 - Contract Closeout: Project record documents.

1.3 QUALITY CONTROL
   A. Employ a professional Engineer of the discipline required for specific service on project, licensed in the State of Iowa.
   B. Submit evidence of Engineer's errors and omissions insurance coverage in the form of an Insurance Certificate.

1.4 SUBMITTALS
   A. Submit name, address, and telephone number of Engineer before starting survey work.
   B. On request, submit documentation verifying accuracy of survey work.
   C. Submit a copy of registered site drawing and certificate signed by the Engineer, that the elevations and locations of the work are in conformance with Contract Documents.

1.5 PROJECT RECORD DOCUMENTS
   A. Maintain complete, accurate log of control and survey work as it progresses. Indicate dimensions, locations, angles, and elevations of construction and site work.
   B. Submit Record Documents under provisions of Section 01700.
   C. Project Record documents are to be updated on a regular basis. The status of the Project Record Documents will be considered when evaluating Applications for Payment. See section 1027 paragraph 1.4 E.

1.6 EXAMINATION
   A. Verify locations of survey control points prior to starting work.
   B. Promptly notify Architect of any discrepancies discovered.

1.7 SURVEY REFERENCE POINTS
   A. Contractor to locate and protect survey control and reference points.
   B. Control datum for survey is that indicated on Drawings.
   C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
   D. Promptly report to Program Manager the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
   E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
1.8 SURVEY REQUIREMENTS

A. Provide field engineering services. Utilize recognized engineering survey practices.

B. 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.

C. Establish 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, and ground floor elevations.

D. Periodically verify layouts by same means.

PART 2 - PRODUCTS
Not used.

PART 3 - EXECUTION
Not used.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Quality Assurance.
   2. Statutory and Jurisdictional Regulations.

B. Related Sections
   1. Document 00700 - General Conditions of the Contract for Construction

1.2 QUALITY ASSURANCE

A. For products of workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

1.3 STATUTORY AND JURISDICTIONAL REGULATIONS

A. All work shall conform to the following requirements:

   All building projects for Des Moines Public Schools (DMPS) shall be designed and Contract Documents prepared in conformity with the following Codes and Regulations:

   1. International Building Code (Most current version used by City of Des Moines)
   2. International Existing Buildings Code (Most current version used by City of Des Moines)
   3. Des Moines Municipal Code
   4. Uniform Plumbing Code (Most current version used by City of Des Moines)
   5. National Electric Code (Most current version used by City of Des Moines)
   6. International Mechanical Code (Most current version used by City of Des Moines)
   7. International Fire Code (Most current version used by City of Des Moines)
   8. Metropolitan Design Standards for Engineering
   10. ADA Accessibility Guideline for Buildings and Facilities


1.4 GENERAL STANDARDS FOR WORK AND MATERIALS

A. Trade Standards:
   1. Referenced standards shall have full force and effect as though printed herein. Upon request, Architect will furnish information as to where copies may be obtained.
   2. Material or trade associations, societies, or other bodies regularly publishing standards most widely used under these documents are listed herein together with reference symbols.
   3. Individual standards referenced in technical specifications (Divisions 1 through Division 16) shall also apply to the work of this contract.
   4. No construction shall commence until building plans have been submitted to and approved by the State Fire marshal’s Office and the State Building Code Bureau and/or other approving agencies as applicable.

1.5 APPLICATION

A. If there is a conflict between any referenced standard and the Contract Documents, notify the Program Manager, and await instructions before proceeding with affected work.

B. The contractual relationships, duties, and responsibilities of the parties to the Contract shall not be altered by mention or inference in any reference document.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES
A. Products and installation for patching and extending existing work.
B. Products and installation for installing new components in existing construction.
C. Transition and adjustments.
D. Repair of damaged surfaces, finishes, and cleaning.

1.2 RELATED SECTIONS
A. Section 01040 - Coordination: Work sequence: District occupancy.
B. Section 01045 - Cutting and Patching.
C. Section 01500 - Construction Facilities and Temporary Controls: Temporary enclosures, protection of installed work and existing facilities, and cleaning during construction.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK
A. New Materials: As specified in product sections or match existing products and work for patching and extending work.
B. Type and Quality of Existing Products: Determine by inspection and testing products where necessary, referring to existing work as a standard.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Verify that demolition is complete, and areas are ready for installation of new work.
B. Beginning of restoration work means acceptance of existing conditions.

3.2 PREPARATION
A. Cut, move, or remove items as necessary for access to alterations and renovation work. Replace and restore at completion.
B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.
C. Remove items to be salvaged and relocate to an area on the main level of the building as designated by the Owner’s Representative. Coordinate Owner’s storage with Owner’s Representative. Weather protect until acceptance by Owner.
D. Remove debris and abandoned items from area and from concealed spaces.
E. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.
F. Close openings in exterior surfaces to protect existing work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.
G. Protect existing fire alarm sensors and wiring in ceilings and walls from damage.
   1. Alert Owner’s Representative prior to work in buildings with existing active fire alarm sensors to avoid response to false alarm and advise Owner’s Representative each day at end of work to reinstate response to alarms.

3.3 INSTALLATION
A. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate District occupancy.
B. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to specified condition.
C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
D. Advise Architect of existing plumbing, heating, ventilation, air conditioning, and electrical systems which are found to be deficient during course of the work.
E. Install products as specified in individual sections.

3.4 TRANSITIONS
A. Where new work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.
B. When 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.

3.5 ADJUSTMENTS
A. 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.
B. Where a change of plane of 1/4 inch or more occurs, provide for a smooth transition.
C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
D. Fit work at penetrations of surfaces as specified in Section 01045.

3.6 FINISHES
A. Finish surfaces as specified in individual product sections.
B. Finish patch work to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Submittal procedures.

B. Related Sections
   1. Section 01310 - Progress Schedules
   2. Section 01400 - Quality Control
   3. Section 01630 - Product Options and Substitutions
   5. Document 00700 – General Conditions of the Contract

1.2 SUBMITTAL PROCEDURES

A. Submit schedule of submittals within 3 working days of receiving Notice of Contract Award. Submittal schedule to include proposed submittal number, specification section, title and anticipated date of submission.

B. All submittals to be submitted for approval within 30 days of Notice of Contract Award.

C. Transmit submittals to Owner’s Representative using Owner’s Representative approved format. Electronic PDF submittals are to be used when possible.

D. Number the submittals using the specification number from the specifications. Resubmittals shall have original number with an alphabetic suffix.

E. Identify Project, Contractor, Subcontractor or supplier; name and telephone number of individual to contact for additional information; pertinent Drawing sheet and detail number(s), specification section number, as appropriate, and date of submission.

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

G. Submit product data sheets which clearly designate which of the items on the sheet is being provided. Cross all other items out to clarify the submittal.

H. Submit color charts in proper quantities of original color materials; photocopied reproductions will not be accepted.

I. Fully coordinate material prior to submittal. Determine and verify field dimensions and conditions, catalog numbers, and similar data. Coordinate with public agencies involved and secure necessary approvals; signify that approvals have been secured by stamp or other means. Coordinate with the various types of work involved; make submittals in groups containing all associated items.
J. Submit product submittals required by individual sections of the specifications. Submittals not required by the specifications, but made at the option of the Contractor, will be returned without review unless accompanied by written, valid justification.

K. Schedule submittals to expedite the Project and deliver to Owner’s Representative. Coordinate submission of related items. Allow a minimum of 15 calendar days for processing.

L. Make complete product submittals. Include shop drawings, product data, samples, manufacturer's instructions and manufacturer's certificates as required in individual specification sections. Partial submittals will be rejected as not complying with Contract Documents. Manufacturer's certificates based on tests or inspections at time of manufacture may be submitted separately.

M. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed work. State whether submitted product is the specified product or an accepted substitution. Shop drawings and product data indicating substitutions which have not been previously accepted will be returned without review.

N. Provide space for Contractor, Owner’s Representative, and Architect/Engineer review stamps.

O. Submit in PDF format.

P. The Architect will review the submittals; mark the submittals with required revisions; stamp the submittals and indicate "No Exceptions Taken," "Make Corrections Noted," "Revise and Resubmit," "Rejected" or "Submit Specified Item" and return the submittal.

Q. Review the returned submittals and take appropriate action as indicated. If submittals are marked "Revise and Resubmit," "Rejected" or "Submit Specified Item," make revisions necessary, identify revisions with a 'cloud' and resubmit in same manner and number as for the original submittal.

R. The Architect will review the resubmittal and take action, as appropriate, in the same manner as for the original submittal.

S. Review the returned resubmittal and take appropriate action as indicated. Continue to revise and resubmit until Architect returns resubmittal marked "No Exception Taken" or "Make Corrections Noted." Said marks signify final action.

T. Following final action by the Architect, provide copies of submittals for concerned parties including District, Job Superintendent and appropriate subcontractors. Instruct parties to promptly report any inability to comply with provisions.

U. Use only those submittals which bear stamps showing final review of the Contractor, the Architect and appropriate Architect’s consultant, as appropriate.

V. If deviations, discrepancies or conflicts between the shop drawings/submittals and contract documents are discovered either prior to or after the shop drawings/submittals are processed by the Architect, the contract documents shall control over the shop drawings/submittals.
1.3 PRODUCT DATA/MATERIAL LIST
A. Submit the number of copies which the Contractor requires, plus six (6) copies which will be retained of any submittal which cannot be made by PDF.
B. Submit manufacturer's most recently published catalog sheets, brochures, drawings, schedules, performance charts, illustrations and other standard descriptive data.
   1. Modify submittal in a neat and orderly fashion to delete information which is not applicable to Project.
   2. Supplement standard information to provide additional information applicable to Project.
   3. Make note of dimension and clearances required.
   4. Make note of performance characteristics and capacities.

1.4 SAMPLES
A. Submit the size of samples specified in individual specification sections. Submit the number of samples which the contractor requires, plus two (2) of which will be retained. Contractor to retain Owner copy of sample at project site.
B. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittal for interfacing work.
C. Submit samples of finishes from the full range of manufacturer's standards of selected custom colors, textures and patterns for Architect's selection.
D. Where samples have natural variation in texture, color and dimension, submit samples showing extreme range plus the middle variation.
E. Erect Field Samples and Mock-Ups at the Project site at location acceptable to Owner's Representative and Architect. Construct each sample or mock-up complete, including work of all trades required in finished work.

1.5 SHOP DRAWINGS
A. Submit in the form of one reproducible transparency and five opaque reproductions if submittal cannot be made by PDF or CAD. Opaque reproductions will be retained by the Owner's Representative and Architect.
B. State or indicate data necessary to describe the product or system. Present in a clear and thorough manner.
C. Identify field dimensions; show relation to adjacent or critical features, work or products.
D. Title each drawing with McKinley CLASSROOM CASEWORK & GREASE INTERCEPTOR and number.
E. After review, reproduce and distribute in accordance with article on procedures above and for Record Documents described in Section 01700, Contract Closeout.

1.6 MANUFACTURER'S INSTRUCTIONS AND CERTIFICATES
A. When specified in individual specification sections, submit manufacturer's printed instruction for delivery, storage, assembly, installation, start-up, adjusting, finishing in quantities specified for Product Date.
B. Identify conflicts between manufacturer's instructions and Contract Documents.
C. Submit manufacturer’s certifications based on recent or previous test results with other submittals specified. Submittal certifications based on tests or inspections at time of manufacture with product delivery.

D. When specified in individual specification sections, submit manufacturer’s certificate for review in quantities specified for Product Data.

E. Indicated material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

F. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

1.7 PATTERNS AND COLORS

A. Unless the exact pattern and color of a product is indicated in the Contract Documents whenever a choice of pattern or color is available for a product, submit accurate color charts and pattern charts in the required number of original color or patterns for review and selection.

1.9 SUBMITTAL TIMELINE

A. The following submittals are due within 24 hours of Bid Time:
   1. Targeted Small Business Participation Form (Document 00312)
   2. Non-Collusion Affidavit (Document 00313)
   3. Bidder Status Form (Document 00314)
   4. Personnel Acknowledgement and Certification (Document 00315)
   5. List of Subcontractors and Suppliers

B. The following submittals are due 10 working days after Notice of Contract Award:
   1. Preliminary Construction Schedule
   2. Certificate of Insurance
   3. Bond
   4. Schedule of Submittals
   5. Copy of Contractor’s Safety Program
   6. Copy of Contractor’s Jobsite Staging Plan

C. The following submittals are due 10 working days prior to first Application for Payment:
   1. Schedule of Values
   2. Construction Progress Schedule
   3. Security Program (section 01500 para. 1.21)

D. The following submittals are due 30 calendar days after Notice of Contract Award:
   1. Balance of all required Project submittals

E. The submittal log will be maintained by the Contractor.
PART 2 - PRODUCTS

Not used
PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY
   A. Section Includes
      1. Format.
      2. Content.
      3. Revisions to Schedules.
   B. Related Sections
      1. Section 01040 - Coordination and Meetings: Project Meetings.

1.2 FORMAT
   A. Prepare Schedules as a horizontal bar chart or CPM with separate bar for each major portion of Work or operation, identifying first workday of each week.
   B. Use commercially available software for producing schedule. Provide electronic document to Owner’s Representative if requested.
   C. Sequence of listing: The chronological order of the start of each item of work.
   D. Scale and Spacing: To provide space for notations and revisions.

1.3 CONTENT
   A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
   B. Identify each item by specification Section number.
   C. Identify work by separate stages and logically grouped activities.
   D. Provide sub-schedules to define critical portions of the entire Schedule.
   E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
   F. Show coordination with District work and other contractors.
   G. Show the network schedule logic on the schedule form of a CPM (or table if a bar chart is used).
   H. Indicate Critical Path of project activities on the project schedule.

1.4 REVISIONS TO SCHEDULES
   A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
   B. Identify activities modified since previous submittal, major changes in scope and other identifiable changes.
   C. Provide narrative report to define problem areas, anticipated delays and impact on Schedule. Report corrective action taken, or proposed, and its effect.

March 16, 2001
1.5 SUBMITTALS

A. Submit Preliminary Construction Schedule within 10 working days after date of Notice of Award.

B. Construction Progress Schedule to be submitted and accepted prior to first Application for Payment.

C. After the Owner’s Representative has accepted the Construction Progress Schedule, it shall become the basis for determining scheduled completion of the project.

D. Submit updated Construction Progress Schedules with each Application for Payment.

E. Submit the schedule by electronic distribution.

1.6 DISTRIBUTION

A. Distribute copies of Project Construction Schedule to project site file, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Quality assurance and control of installation.
B. References.
C. Field samples.
D. Mock-up.
E. Inspection and testing laboratory services.
F. Manufacturers' field services and reports.

1.2 RELATED SECTIONS

A. Section 01090 - Reference Standards.
B. Section 01300 - Submittals: Submission of Manufacturers' Instructions and Certificates.
C. Section 01410 - Testing Laboratory Services
D. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.
B. Comply fully with manufacturers' instructions, including each step in sequence.
C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner's Representative before proceeding.
D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.
E. Perform work by persons qualified to produce workmanship of specified quality.
F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 REFERENCES

A. Conform to reference standards in effect on date of Contract Documents unless otherwise specified in product Sections.
B. Obtain copies of standards when required by Contract Documents.
C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 FIELD SAMPLES

A. Install field samples at the site as required by individual specification sections for review.
B. Acceptable samples represent a quality level for the Work.
C. Where field sample is specified in individual sections to be removed, clear area after field sample has been accepted by Architect.

March 16, 2001
1.6  MOCK-UP
   A. Mock-ups shall be prepared in a timely manner to allow review and acceptance by the Owner’s Representative, Owner and Architect.
   B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals and finishes.
   C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect.

1.7  INSPECTION AND TESTING LABORATORY SERVICES
   A. Owner will appoint, employ and pay for services of an independent firm to perform inspection and testing.
   B. The independent firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Architect.
   C. Reports will be submitted by the independent firm to the Architect and Owner’s Representative in writing indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
   D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
      1. Notify Architect, Inspector and Owner’s Representative 48 hours prior to expected time for operations requiring services.
      2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

1.8  MANUFACTURERS' FIELD SERVICES AND REPORTS
   A. Submit qualifications of observer to Owner’s Representative 30 days in advance of required observations. Observer subject to approval of Owner’s Representative and Architect.
   B. When specified in individual specification sections, require material or product suppliers or manufacturers to provide: qualified staff personnel to observe site conditions, conditions of surfaces and installation; quality of workmanship; start-up of equipment; test, adjust, and balance of equipment; and other as applicable, and to initiate instructions when necessary.
   C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
   D. Submit report in triplicate within 30 days of observation to Owner’s Representative for review.

PART 2 - PRODUCTS
   Not used

PART 3 - EXECUTION
   Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES
   A. District provided testing laboratory services.
   B. Contractor provided testing and inspection services.

1.2 RELATED SECTIONS
   A. Section 01700 - Contract Closeout: Record documents.
   B. Individual Specification Sections: Inspections and tests required, and standards for testing.
   C. Divisions 15 and 16 - Mechanical and Electrical: Testing, adjusting and balancing of mechanical and electrical systems.

1.3 SELECTION AND PAYMENT
   A. The District will employ and pay for the services of testing to conduct required tests and inspections for the project.

   1. Soils: The District will employ and pay for the services of a Soils Engineer to observe excavating, grading, and filling operations and to provide testing of soil materials as specified in individual sections of this specification. The Soils Engineer will have management, laboratory and field supervisory personnel with minimum 5 years experience in testing and inspection of soils materials and will have adequate facilities, equipment, and technical references to permit performance of testing and inspections within applicable regulations and standards.

   2. Other Construction: The District will employ and pay for the services of a testing laboratory to conduct tests, inspections, and special inspections as required and as specified in individual sections of this specification.

      a. For construction requiring testing and inspection other than special inspection. The testing laboratory will have management, laboratory and field supervisory personnel with minimum 5 years experience in testing and inspection of work and materials of construction and will have adequate facilities, equipment, and technical references to permit performance of testing and inspections within applicable regulations and standards.

   B. Re-testing: Per paragraph G.C. 20, when initial tests indicate non-compliance with the Contract Documents, subsequent re-testing occasioned by the non-compliance shall be performed by the same testing agency and the costs thereof will be deducted by the District from the Contract Sum by Change or Field Order.

   C. Re-testing Covered Work: Re-examination of previously tested and inspected work may be ordered by the Architect and by the Owner. The Contractor shall uncover such work if re-testing is ordered. If work is found in accordance with Contract Documents, the District will pay costs of uncovering, removing, re-testing and replacing. If work is found not in accordance with Contract Documents, the District will deduct the cost of re-testing from the Contract Sum by Change Order and the Contractor will bear the costs of uncovering, removing and replacing work.

   D. Testing and inspecting performed for Contractor's convenience, such as testing and inspection to establish equivalence of substitutions, equivalence of repairs to damaged
materials, and testing and inspecting to expedite the operations, shall be the Contractor's responsibility.

1. The Contractor shall employ a licensed professional engineer of the discipline required to develop a testing program that will establish equivalency.

2. The Contractor shall submit the testing program to the Architect for review.

3. The Contractor shall arrange testing in accordance with the accepted testing program to be performed by the District’s testing laboratory.

4. The costs of testing done by the District's testing laboratory for the Contractor will be deducted from the Contract Sum by Change Order.

5. The Contractor may not arrange for testing upon portions of the work already completed except with the written consent of the Architect.

E. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

F. The Architect shall have the right to make tests at any time on materials or work done whether those materials are specified or substituted items.

1.4 AGENCY RESPONSIBILITIES

A. Provide qualified personnel at site. Cooperate with Program Manager, Architect, and Contractor in performance of services.

B. Perform specified sampling and testing of materials in accordance with specified standards.

C. Ascertain compliance of materials and mixes with requirements of Contract Documents.

D. Promptly notify Program Manager, Architect, and Contractor of observed irregularities and non-conformance of work and products.

E. Perform additional tests required by Architect.

F. Attend Preconstruction Meeting. Attend Progress Meetings as requested.

G. Provide quantity estimates for all work associated with unforeseen conditions.

1.5 AGENCY REPORTS

A. Test/Inspection Reports:

1. Include every test and inspection made regardless of whether such tests and inspections indicate that the material and procedures are satisfactory or unsatisfactory.

2. Provide documentation describing scope of additional work associated with unforeseen conditions.

3. Include records of special sampling operations as required.

4. Indicate specified design strength of materials such as masonry, concrete and steel.

5. State whether or not materials and procedures comply with requirements of the Construction Documents.
6. Submit copies of reports to Program Manager, District, Architect, Structural Engineer, Civil Engineer, Soils Engineer and/or Contractor as applicable within 14 days of tests. Submit copies of reports of non-complying materials and procedures immediately.

1.6 LIMITS ON AGENCY AUTHORITY

A. Agency or laboratory may not release, revoke, alter or enlarge on requirements of Contract Documents.

B. Agency or laboratory may not approve or accept any portion of the work.

C. Agency or laboratory may not assume any duties of Contractor.

D. Agency or laboratory has no authority to stop work.

1.7 CONTRACTOR RESPONSIBILITIES

A. Package and deliver to laboratory at designated location adequate samples of materials proposed to be used which require testing. Samples shall be selected by laboratory personnel. Allow proper time for selecting samples, and making tests or considerations.

B. Cooperate with laboratory personnel, and provide access to work and to manufacturer's facilities.

C. Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples as selected by laboratory personnel at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.

D. Notify Program Manager and Architect, minimum 24 hours prior to expected time for operations requiring inspection and testing services. Do not allow work to be covered prior to inspection and testing.

1.8 SCHEDULE OF INSPECTIONS AND TESTS

A. Testing Certificates Provided by Contractor as required:
   1. Mill test reports for reinforcing steel.
   2. Mill test reports for cement.
   3. Weighmasters tickets for each load of transit mixed concrete.
   4. Weighmasters affidavit.
   5. Certifications of welders.
   6. Certifications of materials.

B. Initial Testing Provided by Owner as required:
   1. Site Clearing: Test compaction of excavation backfill.
   2. Earthwork:
      a. Sample and test fill and base materials for compliance with specified requirements.
      b. Inspect placement of engineered fill.
      c. Inspect bottoms of footings and foundation trenches.
      d. Test compaction of each layer of engineered fill.
3. Trenching:
   a. Inspect placement of trench backfill.
   b. Test compaction of trench backfill.

4. Asphalt Concrete Paving:
   a. Sample and test quality of paving and base if directed by Program Manager and Architect.
   b. Test compaction of paving and base if directed by Program Manager and Architect.

5. Portland Cement Concrete Paving:
   a. Review mix designs.
   b. Sample and test compressive strength of concrete.
   c. Sample and test slump of concrete.

6. Concrete Reinforcing:
   a. Inspect placement and installation of reinforcing steel.
   b. Inspect field welding of reinforcing steel.

7. Cast-In-Place Concrete:
   a. Sample and test cement.
   b. Sample and test aggregate.
   c. Review mix designs and confirm mix design proportions with weighmaster.
   d. Perform initial batch plant inspection.
   e. Inspect concrete placement.
   f. Sample and test slump of concrete.
   g. Test air content of concrete.
   h. Sample and test concrete for compressive strength.
   i. Test concrete for shrinkage.

8. Structural Steel:
   a. Inspect shop and field welding.
   b. Test full penetration welds.

9. Metal Fabrications:
   a. Inspect shop and field welding of load bearing fabrications.
   b. Test full penetration welds in load bearing fabrications.

10. Fire caulking:
    a. Inspection by city certified inspection agency.
    b. Test in accordance with accepted practice.
C. Initial Testing Performed by Owner's Testing Laboratory at Owner's Cost: The cost of the following initial tests, if required, will be deducted by the Owner from the Contract Sum by Change Order.

1. Testing to establish equivalence of material not properly identified.
2. Testing to establish equivalence of substitutions.
3. Testing required in order to expedite Contractor's operations.
4. Testing relating to repair of work which fails to meet specifications.
5. Testing and inspection required to correct damage to material in shipping and erection.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes
   1. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water service and sanitary facilities.
   2. Temporary Controls: Barriers, fencing, water, noise and vibration control, dust and mud control, traffic control, interior and exterior enclosures, protection of installed work, security and fire protection.
   3. Construction Facilities: Access roads, parking, progress cleaning, project identification, field offices and storage sheds, and construction aids.

B. Related Sections
   1. Section 01700 - Contract Closeout: Final Cleaning.

1.2 REFERENCES

A. ASTM E84 - Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Submit under the provisions of Section 01300.

1.4 TEMPORARY ELECTRICITY

A. Contractor shall provide all additional materials required for temporary power (e.g. spider boxes, temporary panels and feeder cables) and to provide labor to relocate the panels as required for the project. Contractor shall provide the labor to tie in the temporary panels to the main switchboard and to provide periodic service and maintenance to the temporary panels.

B. Temporary electrical power will be available at the project site from existing outlets and panels. Contractor will replace damaged receptacles damaged by construction activities at no cost to the District.

C. Owner will pay cost of energy used. Contractor shall exercise measures to conserve energy.

D. Should the existing electrical power not be sufficient, Contractor will arrange with the utility company to provide the additional service required and pay the costs associated with providing the additional service or to provide generators. The Contractor will pay cost of this energy used.

Permanent convenience receptacles may be used during construction. Any devices damaged during construction shall be replaced at no cost to the Owner.

1.5 TEMPORARY LIGHTING (See Section 1.4)

1.6 TEMPORARY HEAT

A. The contractor shall supply any temporary heating systems and fuel required for the addition area to allow the continuous progression of the exterior and interior work on the
building. Contractor to install and maintain construction phase filters to prevent dust from entering the systems.

1.7 TEMPORARY VENTILATION
A. Each Trade Contractor shall be responsible for providing adequate forced ventilation of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors and gases.

1.8 TEMPORARY TELEPHONE SERVICE
A. The Contractor will be responsible for their phone / communications services.
B. Trade Contractor’s Project Manager and on-site Project Supervisor shall carry mobile telephones with them during all work hours of the project and be available by phone during off hours for emergencies. Mobile phone numbers to be made available to the Owner prior to start of construction.

1.9 TEMPORARY WATER SERVICE
A. The contractor can use the existing water services for ordinary uses. Contractor is responsible for getting water from the closest existing water source.
B. Owner will pay cost of water used for ordinary uses. Exercise measures to conserve water.
C. Contractor to provide water by tank truck or by hydrant meter for watering sod. Contractor to pay for water used.

1.10 SANITARY FACILITIES
A. The contractor shall provide temporary chemical toilets for the use of their workmen.
B. Existing and permanent sanitary facilities shall not be used.

1.11 BARRIERS
A. Contractor’s, as required, shall provide temporary barriers as detailed below:
   1. Provide temporary barriers to prevent unauthorized entry to construction / building areas and to protect existing facilities and adjacent properties from damage from construction operations.
   2. Provide barricades as required by governing authorities for public rights of way and for public access.
   3. Provide barriers around trees and plants designated to remain. Provide temporary fencing around drip line of trees designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials and puddling or continuous running water. Replace damaged plant life. Maintain existing tree and plant barriers and at the conclusion of construction operations remove temporary tree and plant barriers as directed by the Owner.
   4. Provide barricades around trenches. Barricade trenches less than 6 inches deep with warning tape. Cover trenches 6 inches deep and greater subject to pedestrian traffic with plywood covers or barricade with chain link fence as specified below. Cover trenches subject to vehicular traffic with suitable steel cover or barricade with chain link fence as specified below.
B. Relocate barriers as required by progress of work.
C. Maintain temporary barriers in a structurally sound condition with a neat, orderly appearance. Observe temporary barriers daily for safety compliance.
D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
E. Walkways and Barricades: If Contractor's portion of work interferes with pedestrians on the streets, provide pedestrian walkway protection and wood barricades conforming to City standards and requirements.

1.12 TEMPORARY FENCING
A. Temporary fencing is required as necessary to secure contractor work areas, storage areas and to protect the public. Temporary fencing and gates are to be installed and removed by the contractor. All fencing shall be 6’ high chain link with a top rail and new fabric. It shall be installed sound, maintained during its use and removed when work is complete.

1.13 CONTROL OF WATER
A. Each trade Contractor shall be responsible for water control as detailed below.
1. Rainwater shall be prevented from entering the facilities while work is underway. Rainwater, surface or subsurface water, or other fluid, shall not be permitted to accumulate in excavations or under or about the structures. Should such conditions develop or be encountered, the areas affected shall be de-watered with temporary pumps, piping, ditches, dams or other methods at the expense of the Trade Contractor.
2. Grade site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment.
3. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.14 NOISE AND VIBRATION CONTROL
A. Contractor shall insure noise and vibrations generated through the completion of the Work do not affect educational activities. The contractor and their subcontractors shall modify work schedules, at no cost to the owner, if necessary to prevent disruptions to educational activities.
B. Contractor shall comply with applicable regulatory requirements for the operation of powered equipment as detailed below.
C. Equipment and impact tools shall have intake and exhaust mufflers.
D. Cooperate with the Owner if the use of noisy and vibratory equipment becomes objectionable.
E. Speakers / radios will not be permitted.

1.15 DUST AND MUD CONTROL
A. Contractor shall be responsible for controlling dust and mud during construction.
1. Execute Work by methods to minimize raising dust from construction operations.
2. Conform with applicable Federal, State and Local regulatory requirements and ordinances concerning dust control.
3. Contractor shall be responsible for additional cleaning required in portions of the building outside of the work area that are impacted by dust and debris generated from completing work activities.

B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

C. Remove mud originating from construction site from city streets and sidewalks.

1.16 TRAFFIC CONTROL

A. Contractor: Furnish, erect and maintain sufficient warning and directional signs, barricades and warning lights and sufficient flag people to give adequate warning of construction to vehicular traffic at all times.

B. Coordinate lane closures with appropriate government agencies.

C. Maintain a minimum number of travel lanes for traffic specified by appropriate government agencies.

1.17 EXTERIOR ENCLOSURES

A. Contractor shall be responsible for exterior enclosures as detailed below.

1. Provide temporary insulated weather-tight closures of openings in exterior surfaces to provide acceptable working conditions and protection for materials, to allow for temporary heating and maintenance of ambient temperatures identified in individual specification sections and to prevent entry of unauthorized persons. Provide doors with self-closing hardware and locks.

2. Provide temporary roofing as required.

1.18 INTERIOR ENCLOSURES

1. Provide temporary dust and traffic control enclosures to prevent dust and debris from entering unaltered areas and to protect the public.

2. Certain interior enclosures shall be installed at the start of the project.

1.19 PROTECTION OF INSTALLED WORK

A. Contractor shall be responsible for protection of installed work as detailed below.

1. Protect installed work and provide protection from damage.

2. Provide temporary protection for installed products. Control activity in immediate work area to minimize damage.

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

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

5. Prohibit traffic from landscaped areas.

1.20 PROTECTION OF EXISTING FACILITIES

A. Contractor shall be responsible for protection of existing facilities as detailed below.

1. Provide temporary protection for existing facilities as specified for installed work.
2. Replace or repair pipes, conduits and conductors broken or severed as a result of construction activities by the end of the workday in which they were broken or severed.

3. Become familiar with existing conditions of all systems to remain. Provide temporary connections as required to maintain systems. Protect systems during construction. Provide temporary tie-in pipes, conduits and conductors as required to maintain systems completely operational during construction.

4. The trade contractor shall be responsible for the protection of tops, trunks, and root systems of existing trees and shrubs on the project site. Install planking with 2 x 4’s to 8’ minimum height to protect existing tree trunks on the project site that may be subject to construction damage. Installation of protective structure shall be made before any work is started and not removed until directed by the Owner. Alternate method is to fence around the drip lines of the trees.

Do not permit heavy equipment or stockpiles within the branch spread. No ropes, wires, cables, or other devices shall at any time be affixed to a tree or shrub so as to damage the bark, break branches, or destroy its natural shape.

The Trade Contractor shall be liable in cases of accidental damage to trees and shrubs that are to remain on the site.

The Trade Contractor shall notify the Owner immediately in cases of accidental damage so that the proper repairs can be made. Cost of such repairs will be assessed to the Trade Contractor. The Trade Contractor shall not attempt to make such repairs himself.

Evaluation of trees or shrubs damaged beyond repair shall be made on the basis of replacement cost, if replaceable, with material of equal size. In cases where it would not be possible to replace a tree with one of equal size, trees shall be evaluated on the basis on the "Shade Tree Evaluation" formula of the International Shade Tree Conference, current edition.

5. Maintain existing plumbing, mechanical, electrical, security, intercom and fire alarm systems operational at all times.

1.21 SECURITY

A. Contractor shall be responsible for the security of its own equipment and materials on the job site.

B. Provide sufficient security program and facilities to protect work, existing facilities and Owner operations within construction area from unauthorized entry, vandalism and theft.

C. Secure, maintain and protect the work, stored materials, equipment and temporary facilities until time of acceptance, or such earlier time as Owner may choose to assume such responsibility.

D. Contain and secure construction equipment and materials to satisfaction of the Owner.

E. Submit security program to Owner for review and coordination.

1.22 TEMPORARY FIRE PROTECTION

A. Provide and maintain fire extinguishers, fire hoses and other equipment necessary for fire protection.
B. Designate use and use such equipment for fire protection only.

1.23 LAWN AREAS

1. Contractor's vehicles may not be driven into lawn areas without prior approval of the Owner. In those cases where it is necessary to drive such a vehicle or vehicles, the Contractor shall provide planking material upon which to drive. The Contractor shall be held responsible for any damages incurred.

2. Lawn areas which are disturbed by construction shall be repaired to the satisfaction of the Owner and paid for by the Contractor.

1.24 PARKING

A. Contractor: The contractor may utilize school parking lots during non school hours. All other parking shall be off site.

1.25 PROGRESS CLEANING

A. Contractor shall provide all measures to secure debris and provide dumpsters for removal from the site.

B. Contractor shall maintain all work areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition by removing waste materials weekly or more frequently as required. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces, prior to enclosing the space. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.

C. Contractor shall supply labor for a general job site cleanup each Friday. The buildings shall be brought to a broom clean condition and all debris shall be deposited in the dumpsters. Break cartons and containers down for better use of dumpsters.

1.26 STORAGE

A. Trade contractors shall store all their materials onsite in a manner not to interfere with the work of any other trade contractor. Trade contractors shall move their stored materials as required for the work of all to proceed.

1.27 CONSTRUCTION AIDS

A. Furnish, operate and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment required under the Contract. Include elevators, hoists, derricks and conveyances for transportation of workers and transporting and placing materials and equipment necessary for performance of the work.

B. Maintain plant and equipment in safe and efficient operating condition. Repair damage due to defective plant and equipment and use thereof at no increase in Contract Sum.

C. Furnish, erect, and maintain for duration of work, scaffolds, runways, guardrails, platforms and similar temporary construction necessary for the performance of work. Such facilities shall be of type and arrangement required, structurally sound and well secured.

1.28 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

A. Remove temporary above grade or buried utilities, materials, equipment and facilities prior to inspection at completion.

B. Clean and repair damage caused by installation or use of temporary facilities.
C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.29 TEMPORARY CONTROLS

A. Temporary Construction, Equipment and Protection

1. Protection: Contractor must protect all workers and equipment from power lines and maintain safe distances and protective devices as required by OSHA.

2. Temporary construction and equipment: Temporary construction and equipment shall conform to regulations, ordinances, laws and other requirements of authorities having jurisdiction, including insurance companies, with regards to safety precautions, operation and fire hazard.

B. Pollution Control

1. 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.

2. Waste solvents, oils and other materials which may be harmful to people, plant life, or the environment, shall be removed from the site in containers and disposed of in accordance with applicable laws and regulations.

3. Erect, maintain and remove silt fencing and other erosion control measures as required.

C. Safety

1. Contractor shall submit Company Safety Plan 10 days after Notice of Award under the Provisions of Section 01300.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes
   1. Products.
   2. Transportation and handling.
   3. Storage and protection.
B. Related Sections
   1. Section 01400 - Quality Control: Product quality monitoring.
   2. Section 01630 - Substitutions.

1.2 PRODUCTS
A. Products: Means new materials, machinery, components, equipment, fixtures and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
B. Do not reuse materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
C. Provide interchangeable components of the same manufacturer, for similar components.

1.3 TRANSPORTATION AND HANDLING
A. Transport and handle products in accordance with manufacturer's instructions.
B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 STORAGE AND PROTECTION
A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
B. For exterior storage of fabricated products, place on sloped supports, above ground.
C. Provide off-site storage and protection when site does not permit on-site storage or protection.
D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement or damage.
G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.
PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION
PART 1 GENERAL

1.1 SECTION INCLUDES
A. Contractor’s options in selection of products.
B. Requests for substitution of products.

1.2 RELATED SECTIONS
B. Document 00800 - Supplementary Conditions
C. Section 01040 - Coordination: Applicability of specified reference standards; coordination of construction.
D. Section 01300 - Submittals: Proposed products list; product data submittals.
E. Section 01700 - Contract Closeout: Record documents operation and maintenance data.

1.3 OPTIONS (Based on scope of project and products specified for use, review listed options below and coordinate with General Conditions 3.11.4.)
A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.
B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.
C. Products Specified by Naming Several Manufacturers: Products of named manufacturers meeting specifications; no substitutions of products by other manufacturers allowed.
D. Products Specified by Naming Only One Manufacturer: No option due to necessity to match existing products or systems; no substitutions allowed.

1.4 LIMITATIONS ON SUBSTITUTIONS
A. Requests for substitutions of products will be considered only during the bid period per G.C. 3.35. Subsequent requests will be considered only in case of product unavailability or other conditions beyond control of Contractor.
B. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
C. Substitute products shall not be ordered or installed without written acceptance.
D. Only one request for substitution for each product will be considered. When substitution is not accepted, provide specified product.
E. Architect and Owner will determine acceptability of substitutions.
F. Substitutions shall not extend the contract completion date.

1.5 REQUESTS FOR SUBSTITUTIONS
A. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.
B. Identify product by Specifications section and Article numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers, as appropriate.

C. Attach product data as specified in Section 01300.

D. List similar projects using product, dates of installation and names of Architect/Engineer and Owner.

E. Give itemized comparison of proposed substitution with specified product, listing variations and reference to Specifications section and Article numbers.

F. Give quality and performance comparison between proposed substitution and the specified product.

G. Give cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.

H. List availability of maintenance services and replacement materials.

I. State effect of substitution on construction schedule and changes required in other work or products.

J. State if use of proposed substitutions is subject to payment of license fee or royalty.

K. Submit sample of manufacturer's standard form of guarantee or warranty for proposed substitution.

1.6 CONTRACTOR REPRESENTATION

A. Request for substitution constitutes a representation that Contractor:

1. Has investigated proposed product and has determined that it is equal to or superior in all respects to specified product or that the cost reduction offered is ample justification for accepting the offered substitution.

2. Will provide same warranty for substitution as for specified product.

3. Will coordinate installation of accepted substitute, making such changes as may be required for work to be complete in all respects.

4. Will pay additional costs generated by an accepted substitution, including the cost of the Architect's additional services associated with reviewing and incorporating the substitution.

B. Contractor certifies that:

1. Cost data presented is complete and includes all related costs under this Contract.

2. Substitution is in full compliance with the Contract Documents and applicable regulatory requirements.

C. Contractor waives claims for additional costs related to substitution which may later become apparent.

1.7 SUBMITTAL PROCEDURES

A. Submit three copies of request for substitution.

B. Requests for substitutions will be reviewed and Contractor notified in writing of Owner's decision to accept or reject requested substitution no later than five (5) calendar days before bid.
C. For accepted products, submit shop drawings, product data and samples under provisions of Section 01300.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.
PRE-BID REQUEST SUBSTITUTION FORM

To: Studio Melee

139 4th Street

West Des Moines, IA 50265

PROJECT: McKinley Classroom Casework & Grease Interceptor

Email: Alex DuToit alex@studiomelee.com

We hereby submit for your consideration the following product as substitute for specified item for the above project:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
<th>Paragraph/Line</th>
<th>Specified Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Proposed Substitution:

Attach complete product description, drawings, photographs, performance and test data, warranty, information and other information necessary for evaluation. Identify specific model numbers, finishes, options, etc.

A. Will changes be required to building design or drawing dimensions in order to properly install proposed substitution? Yes ___ No ____. If yes, explain.

B. Will the undersigned pay for changes to the building design, including engineering and drawings costs, caused by requested substitution? Yes ___ No ____.

C. Differences between proposed substitution and specified item.

D. What affect does substitution have on other trades?

E. Does manufacturer's warranty of the proposed substitution differ from that specified?

Yes ___ No ____.

If yes, explain

January 26, 2004
PART 1 - GENERAL

1.1 SECTION INCLUDES
   A. Starting systems.
   B. Demonstration and instructions.

1.2 RELATED SECTIONS
   A. Section 01400 - Quality Control: Manufacturers field reports.
   B. Section 01700 - Contract Closeout.

1.3 STARTING SYSTEMS
   A. Coordinate schedule for start-up of various equipment and systems.
   B. Notify Owner’s Representative 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 or other conditions which may cause damage.
   D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.
   E. Verify wiring and support components for equipment are complete and tested.
   F. Execute start-up under supervision of responsible manufacturer’s technical representative in accordance with manufacturers’ instructions.
   G. When specified in individual specifications 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 in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS
   A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.
   B. Demonstrate Project equipment and instruct in a classroom environment located at the site and instructed by a qualified representative who is knowledgeable about the Project.
   C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail, to explain all aspects of operation and maintenance.
   D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance and shutdown of each item of equipment at scheduled times, at designated location.
   E. All demonstrations and training sessions of equipment/products/systems by qualified personnel shall be video recorded by the Contractor. Two copies of the video recording shall be turned over to the Owner’s Representative.
   F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
G. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures.
B. Final cleaning.
C. Adjusting.
D. Project Record Documents.
E. Operation and maintenance data.
F. Instruction of District personnel.
G. Warranties and bonds.
H. Certification of Asbestos-Free Construction.
I. Spare parts and maintenance materials.
J. Restoration of damaged work.
K. Remedial work.
L. Keys

1.2 RELATED SECTIONS

A. Section 01040 - Project Meetings
B. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning
C. Section 01650 - Commissioning of Systems
D. Document 00700 – General Conditions

1.3 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, work has been inspected, and work is complete in accordance with Contract Documents and ready for Architect’s inspection.
B. Provide submittals to Architect required by governing or other authorities.
C. At the conclusion of the work and before final payment is made, furnish to the Owner a list with the names, contact persons, addresses and telephone numbers, of all the subcontractors and material suppliers who furnished labor and materials on the project. The list shall include identification of the services rendered and of the materials provided by each subcontractor.
D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. Deliver Project Record Documents, Warranties and Bonds, Certification of Asbestos-Free Construction, Spare Parts and Maintenance Materials, final Operation and Maintenance Data at one time with final Application for Payment, and full releases from all subcontractors and suppliers.

1.4 FINAL CLEANING

A. Contractor shall perform the following cleaning:
   1. Execute cleaning prior to final inspection.
2. Comply with applicable regulatory requirements during cleaning and disposal operations.

3. Use cleaning materials which will not create hazards to health or property or cause damage to products or work.

4. Use cleaning materials and methods recommended by the manufacturers of the products to be cleaned.

5. Schedule operations to prevent dust and other contaminants resulting from cleaning operations from adhering to wet or newly finished surfaces.

6. Remove grease, stains, fingerprints, labels, spilled and spattered materials and other foreign materials from interior and exterior surfaces exposed to view including glazing.

7. Remove waste and surplus materials and rubbish from the site.

8. Leave areas which have been entered during the course of the work in a neat condition, free from debris, weeds and material not called for in the Construction Documents.

9. Wash and clean interior and exterior glass and window frames.

B. Contractor shall perform final cleaning of the equipment installation. This clean up will include:

1. Wash and shine and polish glossy surfaces to a clear shine.

2. Vacuum and wipe insides of casework.

3. Vacuum and mop floor

4. Clean equipment and fixtures to a sanitary condition.

5. Clean new and existing surfaces, equipment and fixtures within project area.

1.5 ADJUSTING

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

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on site, one set of the following record documents; record actual revisions to the work:


2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed shop drawings, product data and samples.

6. Construction schedule.

B. Store Record Documents separate from documents used for construction. Label each document "Project Record" in neat, large printed letters. Do not use Project Record Documents for construction.
C. Maintain Project Record Documents in a clean dry, legible condition and in good order.
D. Record information concurrent with construction progress. Do not conceal any work until required information is recorded.
E. Record information initially on set of opaque Drawings and in a copy of Project Manual provided by the District. Transfer information from opaque Drawings to reproducible Drawings provided by the District.
F. Make Project Record Documents available to Owner’s Representative, and Architect at all times.
G. Architect will review Project Record Documents at each billing meeting. Status of Project Record Documents will be considered in evaluating proposed monthly billings.
H. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name, the product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by addenda and modifications.
I. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Changes made by addenda and modifications.
   3. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements such as column lines and walls.
   4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
   5. Measured locations of items, not necessarily concealed, which have been changed from locations shown on Contract Documents.
   6. Deviations from sizes, locations, and other features of installations shown in the Contract Documents.
   7. Details not on original Contract Drawings.
J. Construction Schedule: Submit a Final Construction Progress Schedule based on the latest, updated progress revised to indicate actual dates and durations of the various construction activities.
K. Submit documents to Owner’s Representative with final Application for Payment. Provide in format as acceptable to Architect.

1.7 OPERATION AND MAINTENANCE DATA
A. Operations and maintenance manuals shall be submitted in an electronic PDF format on a disc.
B. Prepare covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of project and subject matter of if multiple discs are required.
C. Internally subdivide the contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
D. Contents: Prepare a Table of Contents for each product or system description identified.

E. Part 1: Directory, listing names, addresses and telephone numbers of Architect, Engineer, Contractor, Subcontractors and major equipment suppliers.

F. Part 2: Operation and maintenance instructions arranged by specification section. For each category identify names, addresses and telephone numbers of Subcontractors and suppliers. Identify the following:
1. Manufacturer's trade or brand name, catalog or model number and, where applicable, serial number,
2. Significant design criteria.
3. List of equipment.
4. Parts list for each component.
5. Operating instructions.
6. Maintenance instructions for equipment and systems.
7. Maintenance instructions for finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

G. Part 3: Project documents and certificates, including the following:
1. Approved copies of shop drawings and product data.
2. Air and water balance reports.
3. Certificates.
4. Photocopies of warranties and bonds.

H. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Architect comments. Revise content of documents as required prior to final submittal.

I. Submit final volumes revised, with final Application for Payment.

J. Provide data where specified in individual sections.

1.8 INSTRUCTION OF DISTRICT'S PERSONNEL
A. Where specified in individual specification sections, furnish qualified personnel for on-the-job instruction of the Owner's operation and maintenance personnel in accordance with section 01650.

B. Furnish instruction including special start-ups and running time prior to occupancy of subject areas. Furnish at no additional cost to Owner.

1.9 WARRANTIES AND BONDS
A. Warrant the entire work against defects in materials and workmanship for 12 months from date of acceptance. In addition, warrant or bond work as required in the individual specification sections.

B. Warranties between Contractor and manufacturers and between Contractor and suppliers shall not affect warranties between the Contractor and the District.
C. Submit warranties typed on the Contractor's letterhead if for the entire work and on the subcontractor's letterhead if for the work of a specification section. Use the form in Section 01710.

D. Provide original and two (2), notarized copies. Execute and assemble documents from subcontractors, suppliers and manufacturers. Verify compliance with Contract Documents. Provide table of contents and assemble in binder with durable plastic cover. Identify on or readable through the front cover with the McKinley Classroom Casework & Grease Interceptor and address, the Contractor's name and address and the title 'WARRANTIES AND BONDS.'

E. Submit all material with final Application for Payment. For equipment put into use with Owner's permission during construction, submit within ten days after first operation. For items of work delayed beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.10 CERTIFICATION OF ASBESTOS-FREE CONSTRUCTION
A. Certify that no materials containing asbestos were incorporated into the construction of work of the Contract.
B. Submit certification typed on Contractor's letterhead. Identify the project by name, address, District Job Number. See Section 01710 for form.

1.11 SPARE PARTS AND MAINTENANCE MATERIALS
A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.
B. Deliver to project site prior to final payment and place in location as directed by Owner's Representative/Owner; obtain receipt.

1.12 RESTORATION OF DAMAGED WORK
A. Restore or replace, as specified or directed by the Architect, materials or finishes damaged from movement of equipment or other operations at no additional expense to the District.
B. Restore to match original work. Finishes shall match appearance of original adjacent work.

1.13 REMEDIAL WORK
A. Perform remedial work necessary due to faulty workmanship or materials at no additional expense to the District.
B. Coordinate remedial work with District. Perform at such time and in such manner to cause minimal interruption and inconvenience to the District's operation.

1.14 SERVICE AND MAINTENANCE CONTRACTS [for elevators, etc.]
A. Compile, review and submit specified service and maintenance contracts.
B. Provide in PDF format titled 'SERVICE AND MAINTENANCE CONTRACTS.'
C. Submit with warranties and bonds.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used
PART 1 - GENERAL

1.1 SECTION INCLUDES
   A. Procedures
   B. Values of Closeout Requirements
   C. Forms

1.2 RELATED SECTIONS
   A. Document 00700 – General Conditions of the Contract
   B. Section 01700 - Contract Closeout
   C. Section 01710 – Contract Closeout Forms

1.3 PROCEDURES
   A. In compliance with Chapter 38 Section 13 of the Iowa Code the Owner allows for the Contractor to request the early release of retained funds.
   B. Prior to Owner’s release of any retained funds, the Contractor shall submit the following forms:
      1. Request for Release of Retained Funds (Section 01705 – Page 2)
      2. Notice of Contractor’s Request for Early Release of Retained Funds (Section 01705 – Page 3) (This form is to be completed by all subcontractors, sub-subcontractors and suppliers on the Project).
      3. Consent of Surety to Early Release of Retained Funds (Section 01705 – Page 4)

1.4 VALUES OF CLOSEOUT REQUIREMENTS
   A. The Owner has established monetary values of closeout requirements for this Project. The Owner will retain funds equal to 200% of the value of any of the following items that are not complete at the time of the request for release of retained funds. This is in addition to funds retained for incomplete construction and punch list items.
      1. Project Record Documents (Section 01700 – Section 1.6) Value $ 2,000.00
      2. Operation and Maintenance Data (Section 01700 – Section 1.7) Value $ 2,000.00

PART 2 - PRODUCTS
   Not Used

PART 3 - EXECUTION
   Not Used

END OF SECTION
REQUEST FOR RELEASE OF RETAINED FUNDS

OWNER
TO: Des Moines Independent
Community School District
2100 Fleur Drive
Des Moines, IA 50321

PROJECT: _________________________________________________

FROM: (Contractor)

This is to certify that I, ________________________________, am an authorized official of working in the capacity of ____________ and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject Contract:

On __________________, the project described above was designated substantially complete as provided for by Chapter 38 of the Iowa Code. As of __________________, the total amount retained by the Owner on this Contract is $__________________.

Pursuant to Iowa Code Chapter 38, Contractor is now making this formal request for the release of all / part (circle one) of the retained funds currently being withheld by the Owner on this Contract.

I know of my own personal knowledge, and do hereby certify, that at least ten (10) calendar days prior to filing this Request for Release of Retained Funds with the Owner, the required notice was given by the Contractor to all known subcontractors, sub-sub-contractors and suppliers on the Project that the Contractor was requesting the early release of retained funds. A signed copy of each said notice is attached hereto.

Notwithstanding this Request for Release for the Retained Funds, the Owner will continue to retain, as applicable:

a. an amount equal to 200% of the value of labor or materials yet to be provided on the Project which will include the value of the itemized costs for closeout phase items of the Project as listed in Section 01705 of the documents, as determined by the Owner through its authorized contract representative.

b. an amount equal to 200% of the value of any Chapter 573 claims currently on file at the time of this Request or as otherwise authorized by Iowa Code Chapter 573. Upon review by the Owner of this Request, any Chapter 573 claims on file, and the status of any work or materials still remaining to be provided on the Project, the Owner shall release all applicable retained funds at its next regularly scheduled board meeting or within thirty (30) days, whichever is less. The Contractor shall release the paid retained funds to the subcontractors and suppliers in the same manner as retained funds are released to the Contractor by the Owner. Each subcontractor shall pass through to each lower tier subcontractor or supplier all retained fund payments from the Contractor in the same manner.

If the Owner does not release all funds requested by the Contractor, Owner shall provide an itemization and/or reason(s) for the non-release to the Contractor within thirty (30) days of the Contractor’s request.

________________________________ __________________ ______________ ____________
CONTRACTOR    BY     DATE

STATE OF IOWA, ________________ COUNTY, ss:

Subscribed and sworn to before me by the said __________________ on this ______________ day of ______
______, ____________.

________________________________________
Notary Public in and for the State of Iowa
NOTICE OF CONTRACTOR’S REQUEST FOR EARLY RELEASE OF RETAINED FUNDS

PART A - NOTICE:
You are hereby notified that (Contractor) will be requesting an early release of funds on a public improvement designated as (Name of Project) for which you have or may have provided labor or materials. The request will be made pursuant to Iowa Code section 38.13. The request may be filed with the Des Moines Independent Community School District after ten calendar days from the date of this notice. The purpose of the request is to have the Des Moines Independent Community School District release and pay funds for all work that has been performed and charged to Des Moines Independent Community School District as of the date of this notice. This notice is provided in accordance with Iowa Code section 38.13.

This Notice was sent by (Contractor) on ______________, 202_.

This Notice was received by __________________________ on _______________, 202_.

____________________________  ____________________
(Signature of Receiver)

PART B – SWORN STATEMENT:

The total aggregate value of our agreement, purchase order or Work on this Project to date is $__________________, of which we acknowledge receipt of total payments to date of $__________________.

The below stated entity, as a Subcontractor, Sub-Subcontractor and/or Supplier attests and certifies the amounts entered above are correct as of the date of this Affidavit, and: 1) that it has received Notice from the Prime Contractor that it intends to apply for partial (or full) Release of Retained Funds and/or Final Payment for the Project, 2) that it is current in payments received to date on this project, 3) that, as of this date, is not aware of any potential claims against the Project or the Owner, and 4) that it will submit all required final closeout substantiation and documents as required by the project documents for it’s area of the work within sixty calendar days.

____________________________   ____________________
(Entity)      (Date)
CONSENT OF SURETY FOR RELEASE OF RETAINED FUNDS

TO OWNER: Des Moines Independent Community School District
Des Moines, IA 50321

PROJECT: _________________________________________________________________

CONTRACTOR: _____________________________________________________________

In accordance with the provisions of the Contract between the Owner and the Contractor for the above project, the SURETY, on bond number ___________________________ dated ________________ hereby approves of the release of retained funds of the Contractor as authorized by law, and agrees that the release of retained funds to the Contractor shall not relieve the Surety of any of its obligations to Des Moines Independent Community School District, 2100 Fleur Drive, Des Moines, Iowa, 50321, OWNER, as set forth in said Surety’s bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

________________________________________
Surety

Signature of authorized representative

ATTEST:

(Seal): Printed name and title
CONTRACTOR'S CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER

TO:    Des Moines Independent
       Community School District
       2100 Fleur Drive
       Des Moines, IA 50321

ARCHITECT

PROJECT: ____________________________

FROM: ____________________________ (Contractor)

This is to certify that I, ____________________________, am an authorized official of __________________________ working in the capacity of __________________________ and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed in accordance with, and in conformity to, the contract drawings and specifications. A list of all incomplete work is attached.

The Contractor hereby releases the Owner and its agents from all claims of and liability to the Contractor for anything done or furnished for or relating to the work, as specified in the Project Manual, except demands against the Owner for the remainder of progress payments retained to date, and unresolved written claims prior to this date.

The contract work is now substantially complete, ready for its intended use, and ready for your inspection.

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The Contractor will complete or correct the work on the list of items attached hereto within ________________ days from the above date of Completion.

_________________ ___________________ Date
Contractor

_________________ ___________________ Date
Architect

The Owner accepts the work or designated portion thereof as substantially complete and will assume full possession thereof at ________________ (time) on ________________ (date), which is also the date of commencement of applicable warranties required by the contract documents, except as stated below:

_________________ ___________________ Date
Des Moines Independent Community School District

This Document shall not become Valid until signed by the Contractor, Architect, and Owner
CERTIFICATE OF FINAL ACCEPTANCE

PROJECT:      PROJECT NO:

CONTRACT DATED:

FROM: OWNER:  Des Moines Independent  TO CONTRACTOR:  Community School District

2100 Fleur Drive
Des Moines, IA  50321

The Work performed under this contract has been reviewed and found, to the Owner’s Representative’s and Architect’s best knowledge, information and belief, to be complete, based on the Owner’s Representative’s and Architect’s on-site observations, inspections, and data gathered. The date of completion of the Project or portion thereof designated above is hereby established as ____________________________

Contractor

By

Date

Architect

By

Date

The Owner accepts the work or designated portion thereof as complete and will assume full acceptance thereof at ____________________ (time) on ____________________ (date).

DMPS Facility Management

Des Moines Independent Community School District

By

Date

This Document shall not become Valid until signed by the Contractor, Architect, and Owner.
FINAL WAIVER AND RELEASE OF CLAIMS

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by Des Moines Independent Community School District to furnish labor and materials for (A) ___________________________ work, under a contract for the ___________________________ School in the City of Des Moines, County of Polk, State of Iowa, of which the Des Moines Independent Community School District is the Owner.

NOW THEREFORE, this _______day of ____________, 20____, for and in consideration of the sum of (B) ___________________________ dollars paid simultaneously herewith, the receipt whereof is hereby acknowledged by the undersigned, the undersigned does hereby waive and release any claims*, liens, rights to, or claim of lien with respect to and on said above-described premises, and the improvements thereon, and on the monies or other consideration due or to become due from the Owner, on account of labor, services, materials, fixtures, apparatus or machinery heretofore or which may hereafter be furnished by the undersigned to or for the above-described premises by virtue of said contract.

(C)

(Name of sole ownership, corporation, or partnership)

______________________________

(Signature of Authorized Representative)

______________________________

(TITLE)

INSTRUCTIONS FOR FINAL WAIVER:

(A) Fill in nature and extent of work, strike the word labor or the word materials if not in your contract.

(B) Amount shown should be the amount actually received and equal to total amount of contract as adjusted.

(C) If waiver is for a corporation name should be used, and title of officer signing waiver should be set forth; if waiver is for a partnership, the partnership name should be used, partner should sign and designate himself as partner.

* The word claims as used herein shall include 573 Claims, Stop Orders, Stop Notices, or Freeze Orders on monies or other consideration of the Owner which are due or to become due on the Contract referenced above.
CONSENT OF SURETY TO FINAL PAYMENT

TO OWNER: Des Moines Independent Community School District
2100 Fleur Drive
Des Moines, IA 50321

PROJECT:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
__________________________, SURETY, on bond of ____________________________, hereby approves of the final payment of the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to Des Moines Independent Community School District, 2100 Fleur Drive, Des Moines, Iowa, 50321, OWNER, as set forth in said Surety’s bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

________________________________________
Surety

________________________________________
Signature of authorized representative

ATTEST:

(Seal):

__________________________
Printed name and title
CONTRACTOR’S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS AND RELEASE OF CLAIMS

TO OWNER: Des Moines Independent Community School District
2100 Fleur Drive
Des Moines, IA 50321

PROJECT NO:

PROJECT:

PROJECT DATED:

STATE OF: Iowa

COUNTY OF: Polk

The undersigned hereby certifies, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the contract referenced above for which the Owner or Owner’s property might in any way be held responsible or encumbered.

EXCEPTIONS:

The undersigned hereby further certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Release of Claims attached hereto include the Contractor, all subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have 573 claims, or encumbrances or the right to assert claims or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:
SUPPORTING DOCUMENTS ATTACHED

HERETO:

1. Consent of Surety to Final Payment. DMPSFM-640

BY:

________________________________________
Signature of authorized representative

Indicate attachment: yes no

Printed Name and Title

The following supporting documents are attached:

1. Contractor’s Waiver and Release of Claims
2. Separate Waiver and Releases of Claims from Subcontractors and material and equipment suppliers accompanied by a list thereof.

________________________________________
Subscribed and sworn before me on this date

Notary Public

My Commission Expires
ARCHITECT’S CERTIFICATE OF SPECIFICATIONS

TO OWNER: Director, Facility Management
           Des Moines Independent Community
           School District
           2100 Fleur Drive
           Des Moines, IA 50321

PROJECT NO:

CONTRACT FOR:

The undersigned hereby certifies as follows:
1. The above referenced Project is finally completed; and
2. No asbestos or asbestos-containing material was specified as a building material in any Construction Documents for the Project; and
3. To the best of my knowledge, no asbestos or asbestos-containing material was used as a building material in the Project.

Architect

Date

Subscribed and sworn before me on this date

Notary Public

My Commission Expires
HAZARDOUS MATERIALS STATEMENT

THE FORM BELOW IS FURNISHED FOR THE CONVENIENCE OF EQUIPMENT OR MATERIALS MANUFACTURERS, DISTRIBUTORS, SUPPLIERS AND THE CONTRACTOR AND MAY BE REPRODUCED AS NECESSARY TO COMPLY WITH SUBMITTAL DOCUMENTATION AS DEFINED IN "SUPPLEMENTARY CONDITIONS".

I, _______________________________________________________, ________________________________
(Name) (Title)
of ____________________________________________________________, do hereby declare that in completing the work of the Bid # ______________________ for project ________________________________ at ________________________________, no manufactured materials assembly/device or item of construction will contain, or in itself is composed of, any materials listed (by Federal or State EPA or Federal or State health agencies) as a hazardous material.

________________________________________________________
Name

________________________________________________________
Title

________________________________________________________
Date

________________________________________________________
Subscribed and sworn before me on this date

________________________________________________________
Notary Public

________________________________________________________
My Commission Expires

THIS STATEMENT MUST BE NOTARIZED
WARRANTY FOR

We hereby warrant that the ____________________________ which we have
provided in the ____________________________ has been completed in accordance with the
requirements of Specification Section(s) ____________________________ and the Contract Documents.

We agree to repair or replace any or all of our work, together with any other adjacent work which may
be displaced by so doing, that may prove to be defective in its workmanship or material within a period
of ____________________________ from the date of acceptance of the above named project
by the Owner; and we also agree to repair any and all damages resulting from such defects, all without
additional expense to the Owner, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above mentioned conditions within 30 days after being
notified in writing by the Owner, we collectively or separately do hereby authorize the Owner to proceed
to have such defective work repaired or replaced and made good at our expense, and we will honor and/pay the costs and charges therefore upon demand.

Signed: ____________________________ Date: ____________________________

Subcontractor's name:
Address:
License Number:

Countersigned: ____________________________ Date ____________________________

Contractors name:
Address:
License Number:

or
Manufacturer's Name
Address:
OR

Signed: ____________________________ Date: ____________________________

Contractors name:
Address:
License Number:

THIS STATEMENT MUST BE NOTARIZED.
SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.
B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Demolition and removal of selected portions of building or structure.
   2. Demolition and removal of selected site elements.
   3. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS
A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner for reuse if indicated.
C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP
A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PREINSTALLATION MEETINGS
A. Pre-demolition Conference: Conduct conference at project site.
   1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.
B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
C. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Use of elevator and stairs.
   5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
E. Pre-demolition Photographs or Video: Submit before Work begins.
F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.
B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes as applicable.
1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the following items:

a. Ceiling mounted projectors

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work

1. If hazardous material remediation is required, it will be handled by the owner in a separate contract.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
3. If unanticipated asbestos is suspected, stop work in the area of potential hazard, shut off fans and other airhandlers ventilating the area, and rope off area until the questionable material is identified. Re-assign workers to continue work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain smoke, fire sprinkler and fire-alarm facilities in service during selective demolition operations.

1.10 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

E. Survey of Existing Conditions: Record existing conditions by use of pre-construction photographs.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
1. Comply with requirements for existing services/systems interruptions specified in Section 01500 "Construction Facilities and Temporary Controls."

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Coordinate with owner’s schedule to shut off any services, systems and utilities.
2. Arrange to shut off indicated services, systems and utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction. District will provide containers to contractor to reclaim material for DMPS future use.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 01500 "Construction Facilities and Temporary Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.

4. Cover and protect furniture, furnishings, and equipment that have not been removed.

5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01500 "Construction Facilities and Temporary Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

D. Temporary Partitions: Provide substantial construction designed by the contractor to provide effective protection of existing areas to remain as required.

1. Exterior closures: Weatherproof, constructed to prevent water leakage, insulated as required to prevent excessive heat loss or gain to existing building areas to remain, and sealed to prevent excessive air infiltration.

2. Interior closures: Isolate demolition operations from other areas. Seal joints and perimeter (including doors) against passage of dust and dirt.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:
1. Clean salvaged items.
2. Store items in a secure area until delivery to Owner.
3. Transport items to Owner’s storage area on-site or off-site.
4. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."
E. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains water tight and weather tight.
   1. Remove existing roof membrane, flashings, coping, and roof accessories.
   2. Remove existing roofing system down to substrate.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119
SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Slabs-on-grade

B. Related Sections:

1. 093000 “Tiling”

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other Pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Steel reinforcement
4. Reinforcement accessories.
5. Liquid Floor Treatments
6. Vapor retarders.
7. Semirigid joint filler.

C. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

D. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

E. Field quality-control reports.

F. Minutes of pre-installation conference.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated. (Testing provided by owner.)

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

1. Note: This may or may not include sourcing special aggregate for interior slab-on-grade concrete slabs.

E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete,"
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

G. Concrete Testing Service: Owner shall engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

H. Pre-installation Conference: Conduct conference at project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
   a. Contractor's superintendent.
   b. Independent testing agency responsible for concrete design mixtures.
   c. Ready-mix concrete manufacturer.
   d. Concrete subcontractor.
   e. Special concrete finish subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semi-rigid joint fillers, forms and form removal limitations, shoring and re-shoring procedures, vapor-retarder installation, anchor rod and anchorage
device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 CEMENTITOUS MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.
   a. Fly Ash: ASTM C 618, Class F or C.
   b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Silica Fume: ASTM C 1240, amorphous silica.

C. Natural sand fine aggregate and crushed limestone coarse aggregate: ASTM C33, clear, hard, durable and uncoated. Limit amounts of objectionable and deleterious materials per Iowa Department of Transportation standard specifications for highway and bridge construction, Series 2009, sections 4110, 4112 and 4115 for clay, coal, carbonaceous shale and chert. Aggregate shall meet IDOT specification 4115.01 for class 3i durability and 4115.01 for abrasion and objectionable materials. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing substances. All interior slab on grade concrete shall use fine aggregate from a source that has a successful history of producing concrete with little to no side effects related to lightweight particle pop-outs in slab on grade applications.

   1. Maximum Coarse-Aggregate Size: 1/2 inch nominal chip mix size aggregate at all slab areas to receive polished concrete floors. Do not over vibrate or uniformly vibrate this concrete so as to cause variations in appearance. at all areas for non-polished concrete floors.
   2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
   3. Aggregates for non-exposed footings may be gravel or limestone.

2.2 ADMIXTURES


B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Epoxy-Coated Reinforcing Bars: *ASTM A 615/A 615M, Grade 60*, deformed bars, *ASTM A 775/A 775M*, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.

C. Epoxy-Coated Wire: ASTM A 884/A 884M, Class A, Type 1 coated, *plain*-steel wire, with less than 2 percent damaged coating in each 12-inch wire length.


2.4 REINFORCEMENT ACCESSORIES

A. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.

B. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
2.5 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
   b. Meadows, W. R., Inc.; LIQUI-HARD.

2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A, except with maximum perm rating of 0.04. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
   d. Stego Industries, LLC; Stego Wrap 15 mil Class A.

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.7 RELATED MATERIALS


B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Reglets: Fabricate reglets of not less than 0.022-inch-thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

D. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
2.8 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20 percent.
3. Ground Granulated Blast-Furnace Slag: 40 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 40 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.
6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 40 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

8. Where new concrete is scheduled to be ground and polished, no coal, shale, chert, lignite, or other lightweight particles should be included in the mix design.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.10 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 470 lb/cu. yd..
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.
5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
6. Sand shall be from a source with no known coal, shale, chert, lignite, or other lightweight particles that could cause problems with the floor finish. No amount of these materials shall be included in the mix design.

PART 3 - EXECUTION

3.1 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.2 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
   a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.-long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.
3.3 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.4 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, and other surfaces.

3.5 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions. Do not install at areas indicated to be exposed polished concrete unless approved in writing by the floor polishing contractor.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 28 days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.6 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete’s durability and structural performance as determined by Architect.

3.7 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

3.8 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000
SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Wood blocking and nailers.
   2. Wood furring.
   3. Plywood backing panels.

B. Related Requirements:

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
   2. NLGA: National Lumber Grades Authority.
   3. RIS: Redwood Inspection Service.
   5. WCLIB: West Coast Lumber Inspection Bureau.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with
requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated wood.
   2. Engineered wood products.
   3. Shear panels.
   5. Powder-actuated fasteners.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   3. Provide dressed lumber, S4S, unless otherwise indicated.
2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Use treatment that does not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Fire treat all rough carpentry, including but not limited to the following:

1. Concealed blocking.
2. Concealed nailers.
3. Plywood backing panels.
4. Subflooring and underlayment for raised platforms.
B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine; No. 2 grade; SPIB.
2. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

B. Fire treated.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preserve treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

D.   Wood Screws:  ASME B18.6.1.
E.   Lag Bolts:  ASME B18.2.1.
F.   Bolts:  Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
G.   Expansion Anchors:  Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
   2. Material:  Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.6  MISCELLANEOUS MATERIALS
A.   Sill-Sealer Gaskets:  Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
B.   Flexible Flashing:  Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.
C.   Adhesives for Gluing Furring to Concrete or Masonry:  Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
D.   Water-Repellent Preservative:  NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1  INSTALLATION, GENERAL
A.   Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.  Arrange joints so that pieces do not span between fewer than three support members.
B.   Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
C.   Securely attach to substrate by fastening as indicated, complying with the following:
1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

I. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.

2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.

J. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

K. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.

2. Use copper naphthenate for items not continuously protected from liquid water.

L. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

M. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

N. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

1. Comply with indicated fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD GROUND, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
3.4 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000
SECTION 064116 – PLASTIC-LAMINATE ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plastic-laminate-faced architectural cabinets
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.

1.3 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, and cabinet hardware and accessories.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural cabinets.
4. Apply WI Certified Compliance Program label to Shop Drawings.
5. Apply AWI Quality Certification Program label to Shop Drawings.

C. Samples for Initial Selection:
1. Plastic laminates.
2. PVC edge material.
3. Thermoset decorative panels.

D. Samples for Verification:
1. Plastic laminates, 8 by 10 inches for each type, color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.
2. Thermoset decorative panels, 8 by 10 inches for each color, pattern, and surface finish, with edge banding on one edge.
3. Corner pieces as follows:
   a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
   b. Miter joints for standing trim.
4. Exposed cabinet hardware and accessories, one unit for each type and finish.

1.5 INFORMATIONAL SUBMITTALS
A. Qualification Data: For Installer and fabricator.
B. Product Certificates: For each type of product.

1.6 QUALITY ASSURANCE
A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
B. Casework to be provided by fabricator participating in AWI QCP – Quality Certified Program.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.
1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.

C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.9 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural cabinets indicated for construction, finishes, installation, and other requirements.

1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.

B. Grade: Custom.

C. Type of Construction: Frameless.

D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.

E. Reveal Dimension: 1/4 inch.
F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.

1. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   
a. **Basis of design color selections:**
      1) Cabinet interiors, shelves, & drawer bodies:
         a) White thermoset melamine.
      2) Typical Base & Wall Cabinet Doors, Drawers & Side Panels
         a) 928-58 ‘Mouse’ as manufactured by Formica.

G. Laminate Cladding for Exposed Surfaces:

1. Horizontal Surfaces: Grade HGS
2. Postformed Surfaces: Grade HGP.
3. Vertical Surfaces: Grade VGS
4. Edges: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels or as indicated on drawings.

H. Materials for Semi-exposed Surfaces:

1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
   a. Edges of Plastic-Laminate Shelves: PVC tape, 0.018-inch minimum thickness, matching laminate in color, pattern, and finish.
   b. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
   c. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3.

2. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
3. Drawer Bottoms: Thermoset decorative panels.

I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

J. Drawer Construction: Fabricate with exposed fronts fastened to sub-front with mounting screws from interior of body.

1. Join sub-fronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.

K. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from laminate manufacturer’s full range in the following categories:
   a. Solid colors, matte finish.
   b. Patterns, matte finish.

2.2 WOOD MATERIALS
   A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
      1. Wood Moisture Content: 5 to 10 percent.
   B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
      1. Medium-Density Fiberboard: ANSI A208.2, Grade 130
      2. Particleboard: ANSI A208.1, Grade M-2
      3. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES
   A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
   B. Hinges: 2-3/4” Five-Knuckle Hinges for 3/4” Full-Overlay Door Panels (or thickness indicated). 270 degree opening, 0.095 Steel, Dull Chrome Finish. Both wings shall have slotted holes for door alignment.”

      Note: Provide (1) stainless steel cable cabinet door restraint per door leaf. Door restraint cable not required for door leafs that open against an adjacent wall surface.

   C. Wire Pulls: Back mounted, solid metal, 4 inches (128mm) long, 2-1/2 inches deep, and 5/16 inch in diameter, US32D (630) Satin Stainless Steel, Typ.
   D. Adjustable Shelf Standards and Supports: 32mm System w/ 5mm holes
   E. Shelf Rests: 5mm metal or Twin pin polycarbonate shelf supports
   F. Drawer Slides: BHMA A156.9.
      1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-over travel-extension type; zinc-plated-steel ball-bearing slides.
   G. Door Locks: BHMA A156.11, E07121.
1. Provide a keyed cabinet lock at all doors of wardrobe cabinets and base cabinets, except those doors in cabinets where plumbing fixtures, plumbing piping, clay traps or other plumbing accessories are located.
2. Provide individual keyed lock per room and master-key for all cabinet locks.

H. Door and Drawer Silencers: BHMA A156.16, L03011.

I. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
1. US26D (262) Satin Chrome, Typ.

J. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: kiln dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

C. Adhesives: Do not use adhesives that contain urea formaldehyde.

D. Adhesive for Bonding Plastic Laminate: Contact cement

1. Adhesive for Bonding Edges: Hot-melt adhesive

2.5 FABRICATION

A. Fabricate cabinets to dimensions, profiles, and details indicated.

B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

A. Grade: Install cabinets to comply with same grade as item to be installed.

B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.

C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.

1. Use filler matching finish of items being installed.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.

2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.
3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean cabinets on exposed and semi-exposed surfaces.

END OF SECTION 064116
SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Silicone joint sealants.
   2. Urethane joint sealants.
   3. Latex joint sealants.

B. Related Sections:
   1. Section 093000 "Tiling" for sealing tile joints.
   2. Section 321373 "Concrete Paving Joint Sealants" for sealing joints in pavements, walkways, and curbing.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

E. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

F. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

G. Field-Adhesion Test Reports: For each sealant application tested.

H. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants using a qualified testing agency.
   1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
   2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.
1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five (5) years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five (5) years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Colors of Exposed Joint Sealants: As selected by Architect and Owner from manufacturer’s full range.

2.2 SILICONE JOINT SEALANTS

A. Applications:

1. Interior, Wet-locations within 5 feet of sinks or plumbing fixtures.
2. On non-porous surfaces such as tile, glass and metal.

B. Single-Component, Non-sag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Dow Corning Corporation; 790
   b. Sika Corporation, Construction Products Division; SikaSil-C990.
   c. Tremco Incorporated; Spectrem 1, Spectrem 800.

2.3 URETHANE JOINT SEALANTS

A. Applications:

1. Exterior Joints

B. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Sika Corporation, Construction Products Division; Sikaflex - 15LM.
   b. Tremco Incorporated; Vulkem 921.
2.4 LATEX JOINT SEALANTS

A. Applications:

1. Interior, Non-wet-locations further than 5 feet from sinks or plumbing fixtures.
2. Where sealant is required to be painted to match adjacent surfaces.

B. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   a. BASF Building Systems; Sonolac.
   c. Tremco Incorporated; Tremflex 834.

2.5 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material, Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
   a. Concrete.
   b. Masonry.
   c. Unglazed surfaces of tile.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
   a. Metal.
   b. Glass.
   c. Porcelain enamel.
   d. Glazed surfaces of tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
   a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.

   a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect tested joints and report on the following:
   a. Whether sealants filled joint cavities and are free of voids.
   b. Whether sealant dimensions and configurations comply with specified requirements.
   c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.

5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATION SUBMITTALS

A. Evaluation Reports: For dimpled steel studs and runners, from ICC-ES.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.

2. Protective Coating: ASTM A 653/A 653M, G40 (interior applications) and ASTM A 653/A 653M, G60 (exterior applications), hot-dipped galvanized, unless otherwise indicated.

B. Studs and Runners: ASTM C 645. Use either steel studs and runners or dimpled steel studs and runners.

1. Steel Studs and Runners:
2. Dimpled Steel Studs and Runners:
   a. Minimum Base-Metal Thickness: 0.025 inch.
   b. Depth: See Drawings.

2.2 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.
   1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
   1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
   2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
   3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
   4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Install bracing at terminations in assemblies.

D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Install studs so flanges within framing system point in same direction.

1. Space studs as follows:
   
   a. Single-Layer Application: 16 inches o.c. unless otherwise indicated.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above, except where partitions are indicated to terminate at underside of lockers, bulkheads, or cabinets.

C. Direct Furring:

   1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 092216
McKinley Classroom Casework & Grease Interceptor
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SECTION 092400 - PORTLAND CEMENT PLASTERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior portland cement plasterwork on metal lath, unit masonry and monolithic concrete.

B. Related Sections:

1. Section 061000 "Rough Carpentry" for wood framing and furring included in portland cement plaster assemblies.
2. Section 092216 "Non-Structural Metal Framing" for non-structural framing systems that support lath and portland cement plaster.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work.

Samples for Initial Selection: For each type of factory-prepared finish coat indicated, 12 by 12 inches, and prepared on rigid backing.

1.4 QUALITY ASSURANCE

A. Mockups: Before plastering, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install mockups for each type of finish indicated.
2. For interior plasterwork, simulate finished lighting conditions for review of mockups.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

B. Preinstallation Conference: Conduct conference at Project Site.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.6 PROJECT CONDITIONS

A. Comply with ASTM C 926 requirements.

B. Interior Plasterwork: Maintain room temperatures at greater than 40 deg F for at least 48 hours before plaster application, and continuously during and after application.

1. Avoid conditions that result in plaster drying out during curing period. Distribute heat evenly; prevent concentrated or uneven heat on plaster.

2. Ventilate building spaces as required to remove water in excess of that required for hydrating plaster in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

PART 2 - PRODUCTS

2.1 METAL LATH


1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Alabama Metal Industries Corporation; a Gibraltar Industries company.
   b. CEMCO.
   c. Clark Western Building Systems.
   d. Dietrich Metal Framing; a Worthington Industries company.
   e. MarinoWARE.
   f. Phillips Manufacturing Co.

2. Diamond-Mesh Lath: Flat or Self-furring, 2.5 lb/sq. yd. (Min.)

2.2 ACCESSORIES

A. General: Comply with ASTM C 1063 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
B. Metal Accessories:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Alabama Metal Industries Corporation; a Gibraltar Industries company.
   b. CEMCO.
   c. Clark Western Building Systems.
   d. Dietrich Metal Framing; a Worthington Industries company.
   e. MarinoWARE.
   f. Phillips Manufacturing Co.

2. Cornerbeads: Fabricated from zinc-coated (galvanized) steel.
   a. Small nose cornerbead with expanded flanges; use unless otherwise indicated.
   b. Small nose cornerbead with perforated flanges; use on curved corners.
   c. Small nose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing masonry corners.
   d. Bull nose cornerbead, radius 3/4 inch minimum, with expanded flanges; use at locations indicated on Drawings.

3. Casing Beads: Fabricated from zinc-coated (galvanized) steel; square-edged style; with expanded flanges.

4. Control Joints: Fabricated from zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

5. Expansion Joints: Fabricated from zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.

6. Two-Piece Expansion Joints: Fabricated from zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch wide; with perforated flanges.

2.3 MISCELLANEOUS MATERIALS

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in portland cement plaster.

C. Bonding Compound: ASTM C 932.

D. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of no fewer than three exposed threads.

E. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.
F. Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter, unless otherwise indicated.

G. Acoustical Sealant: As specified in Section 079200 "Joint Sealants."

2.4 PLASTER MATERIALS

A. Portland Cement: ASTM C 150, Type II.

B. Masonry Cement: ASTM C 91, Type N.

C. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

D. Sand Aggregate: ASTM C 897.
   1. Color for Job-Mixed Finish Coats: [White] [In color matching Architect's sample].

E. Perlite Aggregate: ASTM C 35.

2.5 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.
   1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. of cementitious materials.

B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:
   1. Portland Cement Mixes:
      a. Scratch Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
      b. Brown Coat: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.

   2. Masonry Cement Mixes:
      a. Scratch Coat: 1 part masonry cement and 2-1/2 to 4 parts aggregate.
      b. Brown Coat: 1 part masonry cement and 3 to 5 parts aggregate, but not less than volume of aggregate used in scratch coat.
C. Base-Coat Mixes: Single base coats for two-coat plasterwork as follows:

1. Portland Cement Mix: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
2. Masonry Cement Mix: Use 1 part masonry cement and 2-1/2 to 4 parts aggregate.

D. Job-Mixed Finish-Coat Mixes:

1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 1-1/2 to 2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.
2. Masonry Cement Mix: 1 part masonry cement and 1-1/2 to 3 parts aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

B. Prepare solid substrates for plaster that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.3 INSTALLATION, GENERAL

A. Acoustical Sealant: Where required, seal joints between edges of plasterwork and abutting construction with acoustical sealant.

3.4 INSTALLING METAL LATH

A. Expanded-Metal Lath: Install according to ASTM C 1063.

2. Flat-Ceiling and Horizontal Framing: Install flat diamond-mesh lath.
3.5 INSTALLING ACCESSORIES

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:
   
   1. Install cornerbead at interior locations only.

C. Control Joints: Install control joints at locations indicated on Drawings or at specific locations approved by Architect, prior to installation, as described below:
   
   1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:
      
      a. Vertical Surfaces: 144 sq. ft.
      b. Horizontal and other Nonvertical Surfaces: 100 sq. ft.
   
   2. At distances between control joints of not greater than 18 feet o.c.
   3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
   4. Where control joints occur in surface of construction directly behind plaster.
   5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.6 PLASTER APPLICATION

A. General: Comply with ASTM C 926.
   
   1. Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.
   2. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
   3. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

B. Bonding Compound: Apply on unit masonry and concrete plaster bases.

C. Walls; Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork, on masonry, on concrete; 3/4-inch thickness.
   
   1. Portland cement mixes.
   2. Masonry cement mixes.
   3. Portland and masonry cement mixes.
   5. Portland and plastic cement mixes.
D. Ceilings; Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork; 3/4-inch thickness.

1. Portland cement mixes.
2. Masonry cement mixes.
3. Portland and masonry cement mixes.
5. Portland and plastic cement mixes.

E. Walls; Base-Coat Mix: Scratch coat for two-coat plasterwork, 3/8 inch thick on concrete masonry, 1/4 inch thick on concrete.

1. Portland cement mixes.
2. Masonry cement mixes.
3. Portland and masonry cement mixes.
5. Portland and plastic cement mixes.

F. Ceilings; Base-Coat Mix: Scratch coat for two-coat plasterwork, 1/4 inch thick on concrete.

1. Portland cement mixes.
2. Masonry cement mixes.
3. Portland and masonry cement mixes.
5. Portland and plastic cement mixes.

G. Plaster Finish Coats: Finish to match adjacent plaster surfaces.

H. Concealed Interior Plasterwork:

1. Where plaster application will be concealed behind built-in cabinets, similar furnishings, and equipment, apply finish coat.
2. Where plaster application will be concealed above suspended ceilings and in similar locations, finish coat may be omitted.
3. Where plaster application will be used as a base for adhesive application of tile and similar finishes, omit finish coat.

3.7 PLASTER REPAIRS

A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.8 PROTECTION

A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair
floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 092400
SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.
   B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY
   A. Section Includes:
      1. Interior gypsum board.
   B. Related Requirements:
      1. Section 092216 "Non-Structural Metal Framing" for non-structural framing that support gypsum board panels.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of product.
   B. Samples: For the following products:
      1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE
   A. Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
      1. Install mockups for the following:
         a. Each level of gypsum board finish indicated for use in exposed locations.
         b. Each texture finish indicated.
      2. Apply or install final decoration indicated, including painting on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. American Gypsum.
   2. CertainTeed Corp.
   3. Georgia-Pacific Gypsum LLC.
   5. USG Corporation.
B. Gypsum Wallboard: ASTM C 1396/C 1396M.
   1. Thickness: 5/8 inch, unless otherwise indicated on Drawings.
   2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.

C. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
   1. Core: 5/8 inch, Type X.
   2. Long Edges: Tapered.
   3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.
   1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, or paper-faced galvanized steel sheet.
   2. Shapes:
      a. Cornerbead.
      b. LC-Bead: J-shaped; exposed long flange receives joint compound.
      c. L-Bead: L-shaped; exposed long flange receives joint compound.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:
   1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
   1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
   2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.
      a. Use setting-type compound for installing paper-faced metal trim accessories.
   3. Fill Coat: For second coat, use setting-type, sandable topping compound.
   4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

   1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
   1. Fit gypsum panels around ducts, pipes, and conduits.
   2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:
   1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
   2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated, and minimize end joints.
      a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
      b. At stairwells and other high walls, install panels horizontally unless otherwise indicated.
   3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
   4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:
   1. Cornerbead: Use at outside corners unless otherwise indicated.
   2. LC-Bead: Use at exposed panel edges.
   3. L-Bead: Use where indicated.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
   1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
   2. Level 5: Typical at all exposed finished gypsum board wall and ceiling areas.
      a. Primer and its application to surfaces are specified in other Section 099123 "Interior Painting."

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Quarry tile.
   2. Cove base.

B. Related Sections:
   1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.


C. Module Size: Actual tile size plus joint width indicated.

D. Face Size: Actual tile size, excluding spacer lugs.

1.4 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
   1. Level Surfaces: Minimum 0.60 or higher.
2. Step Treads: Minimum 0.75 or higher.
3. Ramp Surfaces: Minimum 0.75 or higher.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.

D. Samples for Verification:
   1. Full-size units of each type and composition of tile and for each color and finish required. For ceramic mosaic tile in color blend patterns, provide full sheets of each color blend.
   2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least 12 inches square, but not fewer than 4 tiles. Use grout of type and in color or colors approved for completed Work.
   3. Full-size units of each type of trim and accessory for each color and finish required.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

C. Product Certificates: For each type of product, signed by product manufacturer.

D. Material Test Reports: For each tile-setting and -grouting product and special purpose tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.8 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain tile from one source or producer.
   1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer for each product:
   1. Joint sealants.
   2. Metal edge strips.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockup of floor tile installation.
   2. Build mockup of wall tile installation.
   3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Pre-installation Conference: Conduct conference at project site.
   1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Store liquid materials in unopened containers and protected from freezing.
E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.10 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements unless otherwise indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.

C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in swimming pools, near plumbing fixtures, or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

E. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.2 TILE PRODUCTS

A. Manufacturer:
1. **Basis-of-Design Product:** Subject to compliance with requirements, provide “Suretread” by Daltile or approved equal.

2. Field Tile Face Size: 6 by 6 inches
3. Thickness: 3/8 inch.
4. Tile Color: “Golden Brown 0Q75”
5. Grout Color: As selected by Architect from manufacturer's full range to match existing.
6. For furan-grouted quarry tile, pre-coat with temporary protective coating.

**B. Cove tile base:**

1. **Basis-of-Design Product:** Subject to compliance with requirements, provide “Suretread” by Daltile or approved equal.

2. Field Tile Face Size: 6 by 6 inches
3. Thickness: 3/8 inch.
4. Tile Color: “Golden Brown 0Q75”
5. Grout Color: As selected by Architect from manufacturer's full range.

### 2.3 SETTING MATERIALS

**A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.**

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. **Basis-of-Design Product:** Subject to compliance with requirements, provide Laticrete or comparable product by one of the following:
   a. Bostik, Inc.
   b. MAPEI Corporation.
   c. TEC; a subsidiary of H. B. Fuller Company.

3. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
4. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

### 2.4 GROUT MATERIALS

**A. Water-Cleanable Epoxy Grout: ANSI A118.3.**

1. **Basis-of-Design Product:** Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
b. Bonsal American; an Oldcastle company.

c. Bostik, Inc.

d. Laticrete International, Inc.

e. MAPEI Corporation.

f. TEC; a subsidiary of H. B. Fuller Company.

2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 deg F and 212 deg F, respectively, and certified by manufacturer for intended use.

2.5 ELASTOMERIC SEALANTS

A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements and with the applicable requirements in Section 079200 "Joint Sealants."

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.

C. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. DAP Inc.

b. Dow Corning Corporation; Dow Corning 786.

c. GE Silicones; a division of GE Specialty Materials; Sanitary 1700.


e. Tremco Incorporated; Tremsil 600 White.

2.6 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A 666, 300 Series exposed-edge material.

C. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F per ASTM D 87.
2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.

D. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

E. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

1. Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   a. Bostik, Inc.; CeramaSeal [Grout & Tile Sealer] [Magic Seal] [Silox 8] [Siloxane 220].
   b. MAPEI Corporation; KER [003, Silicone Spray Sealer for Cementitious Tile Grout] [004, Keraseal Penetrating Sealer for Unglazed Grout and Tile].
   c. TEC; a subsidiary of H. B. Fuller Company; [TA-256 Penetrating Silicone] [TA-257 Silicone] Grout Sealer.

2.7 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with adhesives or thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
   a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
   b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.

4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

B. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

C. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 TILE INSTALLATION

A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
   a. Tile floors in wet areas.
   b. Tile floors composed of tiles 8 by 8 inches or larger.
   c. Tile floors composed of rib-backed tiles.
B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges. All base shall be coved tile w/ factory finished edges.

E. Jointing Pattern: Lay tile in grid pattern indicated on drawings. Unless noted otherwise, lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Quarry Tile: 3/8 inch.

G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

I. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile and/or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.

J. Grout Sealer: Apply grout sealer to cementitious grout joints in tile walls and floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
3.4 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove epoxy grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

B. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

END OF SECTION 093000
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

   1. Resilient base.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of product indicated.

C. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.

D. Product Schedule: For resilient products use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

   1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Mockups: Provide resilient products with mockups specified in other Sections.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.7 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 85 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE (VB-1)

A. Resilient Base:

1. **Basis-of-Design Product:** Subject to compliance with requirements, provide Traditional 4” Base by Tarkett or comparable product by one of the following:
   a. Johnsonite.
   b. Armstrong.
   c. Roppe.


1. Material Requirement: Type TV (vinyl, vulcanized thermoplastic)
2. Manufacturing Method: Group I (solid, homogeneous)

C. Style: Match profile of existing adjacent vinyl base.

D. Minimum Thickness: 0.125 inch (3.2 mm)
E. Height: Match existing adjacent vinyl base. 4 inch tall typical.
F. Lengths: Coils in manufacturer’s standard length.
G. Outside Corners: Job formed or preformed.
H. Inside Corners: Job formed or preformed.
I. Color: #469 “Mystify” CG by Johnsonite.

2.2 RESILIENT BASE (VB-2)
A. Resilient Base:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Traditional 4” Base by Tarkett or comparable product by one of the following:
      a. Johnsonite.
      b. Armstrong.
      c. Roppe.
   
   1. Material Requirement: Type TV (vinyl, vulcanized thermoplastic)
   2. Manufacturing Method: Group I (solid, homogeneous)
   
C. Style: Match profile of existing adjacent vinyl base.
D. Minimum Thickness: 0.125 inch (3.2 mm)
E. Height: Match existing adjacent vinyl base. 4 inch tall typical.
F. Lengths: Coils in manufacturer’s standard length.
G. Outside Corners: Job formed or preformed.
H. Inside Corners: Job formed or preformed.
I. Color: #63 “Burnt Umber” B by Johnsonite.

2.3 INSTALLATION MATERIALS
A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:
   1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
   2. Inside Corners: Use straight pieces of maximum lengths possible.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:
   1. Remove adhesive and other blemishes from exposed surfaces.
   2. Sweep and vacuum surfaces thoroughly.
   3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products until Substantial Completion.

END OF SECTION 096513
SECTION 099123 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. In general, this section includes new finishes on all exposed surfaces within the building, or added to the exterior of the building unless specifically excluded on the drawings or room finish schedule.

B. Section includes surface preparation and the application of paint systems on the following new and existing substrates:

1. Concrete.
2. Clay-masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Wood.

C. Section includes surface preparation and application of semi-transparent finishes on new and existing doors, trim, woodwork and casework. Scope indicated on drawings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.
1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: Five (5) percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
   a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
   b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.
   a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 85 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Diamond Vogel Paints.
   2. PPG Architectural Finishes, Inc.
   4. ICI Paints.
   5. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range. Intent is to match existing adjacent painted surfaces.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
   1. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
   2. Testing agency will perform tests for compliance with product requirements.
   3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.
PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Plaster Substrates: Verify that plaster is fully cured.

E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.

F. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

G. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer’s written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Existing Walls & Ceilings: Remove loose paint or plaster, patch & blend with existing adjacent textures. Sand out voids or ridges in existing finish to produce a smooth, uniform surface.

J. Aluminum Substrates: Remove loose surface oxidation.

K. New and Existing Wood Substrates for paint:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:
   a. Uninsulated & Insulated metal piping.
   b. Uninsulated & Insulated plastic piping.
   c. Pipe hangers and supports.
   d. Metal or Plastic conduit.
   e. Fire suppression/sprinkler piping
   f. Fire suppression/sprinkler heads.
   g. Tanks that do not have factory-applied final finishes.
   h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering, paint-grade galvanization or other paintable jacket material.
   i. Other items as directed by Architect.
   j. Portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are exposed to view.

2. DO NOT Paint the following work where exposed to view:
   a. Telecommunications cables, raceway and other devices:
      1) DO NOT PAINT CABLE - If a cable is inadvertently painted, it shall be hereby defined as damaged. The cable shall be replaced, in its entirety, by the Contractor at their expense.
      2) DO NOT PAINT SURFACE MOUNT RACEWAY OR DEVICE BOXES - The Panduit LDPH10 surface mount raceway and the data termination boxes shall not be painted.
      3) CLEANING NOT ACCEPTABLE - Cleaning of painted cable is not acceptable.
      4) NOTIFICATION - It shall be the responsibility of the Contractor to notify the Architect if any cable is painted. Such notification shall be made within one working day of the occurrence, so that representative of the School District can make assessment of the damage.
3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

   1. Latex System:


B. Clay-Masonry Substrates:

   1. Latex System:


C. Concrete Masonry Units (CMU) Substrates:

   1. Latex System:

D. Steel Substrates:

1. Alkyd System:

E. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

F. New and existing Wood Substrates: Including wood trim, architectural woodwork, doors, wood windows, wood-based panel products, and exposed wood structure.

1. Latex System:

G. New and existing Gypsum Board and Plaster Substrates:

1. Latex System (typical walls and ceilings):

2. Epoxy System (at wet-locations):
SECTION 105115 – RE-FINISHING & RE-INSTALLING METAL LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. In general, this section includes surface preparation and refinishing all exposed surfaces outside and inside metal lockers, including bodies and doors on all units indicated on Drawings.

B. Section Includes:

1. Re-finishing existing in-place metal lockers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Selection: For field-applied electrostatic color finishes, on metallic material, not less than 3 by 3 inches, for each type, color, pattern, and surface finish.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

   1. Paint: Five (5) percent, but not less than 1 gal. of each material and color applied.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.
1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 85 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Field Measurements: Where lockers are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings.

D. Established Dimensions:

   1. Where lockers are indicated to fit to other construction, establish dimensions for areas where lockers are to fit and trimming is required.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS (TRIMS)

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B, suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with A60 zinc-iron, alloy (galvannealed) coating designation.

C. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.
2.2 REFINISHING EXISTING LOCKERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Diamond Vogel Paints.
   2. PPG Architectural Finishes, Inc.
   4. ICI Paints.
   5. Sherwin-Williams Company (The).

B. Color: “Cityscape SW 7067” by Sherwin Williams or similar.

2.3 PAINT, GENERAL

A. Material Compatibility:

   1. Provide materials that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

2. Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

D. Surface preparation: Lightly sand and remove all loose debris including chipping paint, rust, dust, grime, etc. Interior and exterior surface shall be prepared to receive electrostatic paint as required by manufacturer and installer.

3.3 RE-FINISHING METAL LOCKERS

A. Apply paints according to manufacturer’s written instructions and to recommendations in "MPI Manual."

B. Provide electrostatic enamel paint applied with hand gun.

C. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

D. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

3.4 RE-INSTALLING METAL LOCKERS

A. General: Install level, plumb, and true; shim as required, using concealed shims.

1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.

2. Anchor single rows of metal lockers to walls near top and bottom of lockers and to floor.

3. Anchor back-to-back metal lockers to floor.
B. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.

1. Provide new metal for trimming at the site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.
2. Attach filler panels with concealed fasteners. Locate filler panels on both ends of locker runs to fill gaps between side of locker and adjacent walls.

3.5 ADJUSTING, CLEANING, AND PROTECTION

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding.

B. Protect metal lockers from damage, abuse, dust, dirt, or stain. Do not permit use of lockers during construction.

C. Touch up marred finishes, or replace metal lockers that cannot be restored. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 105115
SECTION 123623 - PLASTIC-LAMINATE COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.
   B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY
   A. Section includes plastic-laminate countertops.

1.3 PRE-INSTALLATION MEETINGS
   A. Pre-installation Conference: Conduct conference at project site.

1.4 ACTION SUBMITTALS
   A. Product Data: For each type of product, including high-pressure decorative laminate and adhesive for bonding plastic laminate.
   B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
     1. Show details full size.
     2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and grommets installed in plastic-laminate countertops.
     3. Apply WI Certified Compliance Program label to Shop Drawings.
     4. Apply AWI Quality Certification Program label to Shop Drawings.
   C. Samples for Initial Selection:
     1. Plastic laminates.
   D. Samples for Verification:
     1. Plastic laminates, 8 by 10 inches for each color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.
1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator and installer.

B. Product Certificates: For each type of product.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

B. Countertops to be provided by fabricator participating in AWI QCP – Quality Certified Program.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 85 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

B. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.9 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that countertops can be supported and installed as indicated.
PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE COUNTERTOPS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural countertops indicated for construction, finishes, installation, and other requirements.

1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.

B. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Basis of design color selections:
      1) Typical Countertops
          a) 507-58 ‘Folkstone Grafix’ as manufactured by Formica.

C. Grade: Custom

D. Edge Treatment: Euro front or as indicated.

E. Moisture Proof Core Material: Provide MEDEX or Exteria core within 4’ of water source.

F. Core Thickness: 3/4 inch

1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.

G. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BK1, on underside of countertop substrate.


I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

   1. As selected by Architect from laminate manufacturer's full range in the following categories:

      a. Solid colors, matte finish.
      b. Patterns, matte finish.
2.2 ACCESSORIES

A. Grommets for Cable Passage through Countertops: 2-inch, grey, molded-plastic grommets and matching plastic caps with slot for wire passage.

1. Product: Subject to compliance with requirements, provide "OG or SG series" by Doug Mockett & Company, Inc.

2. Location: Where required to access existing electrical outlets below countertops.

2.3 MISCELLANEOUS MATERIALS

A. Adhesives: Do not use adhesives that contain urea formaldehyde.

B. Adhesive for Bonding Plastic Laminate: Contact cement

2.4 FABRICATION

A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:

1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.

B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.

2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.

C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.
PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.

B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

A. Grade: Install countertops to comply with same grade as item to be installed.

B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
   1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
   2. Seal edges of cutouts by saturating with varnish.

C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
   1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

F. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
   1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
   2. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.
3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean countertops on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 123623
SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses and plants.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for concrete slabs-on-grade.
5. Subbase course and base course for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Sections:

1. Section 329200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
   1. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect or Owner. Unauthorized excavation, as well as remedial work directed by Architect or Owner, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.5 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
B. Utility Locator Service: Notify School District and Iowa One Call for area where Project is located before beginning earth moving operations.

C. Do not commence earth moving operations until temporary erosion- and sedimentation-control measures, specified in Section 311000 "Site Clearing," are in place.

D. Do not commence earth moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

E. The following practices are prohibited within protection zones:
   1. Storage of construction materials, debris, or excavated material.
   2. Parking vehicles or equipment.
   3. Foot traffic.
   4. Erection of sheds or structures.
   5. Impoundment of water.
   6. Excavation or other digging unless otherwise indicated.
   7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
   1. Liquid Limit: 45.
   2. Plasticity Index: 25.

C. Unsatisfactory Soils: Soil Classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145 or a combination of these groups.
   1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

J. Sand: ASTM C 33; fine aggregate.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

A. Tracer Wire: See Section 276740

B. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

C. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
   a. 24 inches outside of concrete forms other than at footings.
   b. 12 inches outside of concrete forms at footings.
   c. 6 inches outside of minimum required dimensions of concrete cast against grade.
   d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
   e. 6 inches beneath bottom of concrete slabs-on-grade.
   f. 6 inches beneath pipe in trenches, and the greater of 24 inches than pipe or 42 inches wide.

B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross-sectioned by Architect. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
   a. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:
   a. 24 inches outside of concrete forms other than at footings.
   b. 12 inches outside of concrete forms at footings.
   c. 6 inches outside of minimum required dimensions of concrete cast against grade.
   d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
   e. 6 inches beneath bottom of concrete slabs-on-grade.
   f. 6 inches beneath pipe in trenches, and the greater of 24 inches than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.

3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.

4. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.8 SUBGRADE INSPECTION

A. Notify Independent Testing Agency when excavations have reached required subgrade.

B. If Testing Agency determines that unsatisfactory soil is present, review options with owner and architect. Continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph

2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2000 psi may be used when approved by Architect and owner.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect and owner.

3.10 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 UTILITY TRENCH BACKFILL

A. General: Comply with SUDAS Figures 3010.101 through 3010.105, as appropriate.

1. Bedding and backfill used for pipe installation will depend on:
   a. Type of installation (water main, sanitary sewer gravity main, sanitary sewer force main, or storm sewer).
   b. Pipe material.
   c. Depth of bury.
   d. Pipe diameter.

2. After pipe installation, place remaining bedding material and immediately place backfill in trench.
3. Adjust the moisture content of excessively wet, but otherwise suitable, backfill material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.

4. Adjust the moisture content of excessively dry, but otherwise suitable, backfill material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.

5. Hydraulic compaction (flooding with water) is not allowed unless authorized by the Engineer.

B. Pipe Bedding:
   1. Granular Material:
      a. Class I granular bedding material is required for all gravity mains. Use when specified for pressure pipes.
      b. Comply with Figures 3010.101 through 3010.105.
      c. Place bedding material in the bottom of the trench in lifts no greater than 6 inches thick. Consolidate and moderately compact bedding material.
      d. Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.
      e. Install pipe and system components.
      f. Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe.

   2. Suitable Backfill Material:
      a. Only use with pressure pipe. Comply with Figure 3010.104.
      b. Use suitable backfill material to shape trench bottom to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.

   3. Special Pipe Embedment and Encasement Materials:
      a. Concrete, Flowable Mortar, or CLSM:
         1) If specified in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.
         2) Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.
      b. Waterstop:
         1) Place Class IVA clay backfill material, and compact to at least 90% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.
         2) If trench stabilization material is required, extend waterstop through stabilization material to bottom of trench.

C. Haunch Support: Place from the top of the pipe bedding to the springline of the pipe.
   1. Granular Material:
      a. Place Class I material in lifts no greater than 6 inches thick.
      b. Consolidate and moderately compact by slicing with a shovel or using other approved techniques.

   2. Suitable Backfill Material:
a. Place in lifts no greater than 6 inches thick.
b. For Class II backfill material, consolidate and moderately compact by slicing with a shovel or using other approved techniques.
c. For Class III and Class IVA backfill materials, compact to at least 90% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

3. Special Pipe Embedment and Encasement Materials:
   a. Concrete, Flowable Mortar, or CLSM:
      1) If specified in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.
      2) Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.
   b. Waterstop: Place and compact Class IVA clay backfill material according to the suitable backfill material requirement above.

D. Primary and Secondary Backfill:
   1. General:
      a. For primary backfill, place from the springline of the pipe to the top of the pipe.
      b. For secondary backfill, place from the top of the pipe to 1 foot above the top of the pipe.

   2. Granular Material:
      a. Place in lifts no greater than 6 inches thick.
      b. Compact to at least 65% relative density.

   3. Suitable Backfill Material:
      a. Place in lifts no greater than 6 inches thick.
      b. For Class II backfill material, compact to at least 65% relative density.
      c. For Class III and Class IVA backfill materials, compact to at least 95% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

   4. Special Pipe Embedment and Encasement Materials:
      a. Concrete, Flowable Mortar, or CLSM:
         1) If specified in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.
         2) Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.
      b. Waterstop: Place and compact Class IVA clay backfill material according to the suitable backfill material requirement above.

E. Final Trench Backfill:
   1. Place suitable backfill material from 1 foot above the top of the pipe to the top of the trench.
      a. Use no more than 8 inch thick lifts for backfill areas more than 3 feet below the bottom of pavement.
      b. Use no more than 6 inch thick lifts for backfill areas less than or equal to 3 feet below the bottom of pavement.
2. Place backfill material after recording locations of connections and appurtenances or at the Engineer's direction.

3. Class I and Class II Backfill Material:
   a. Compact to at least 65% relative density within right-of-way.
   b. Compact to at least 50% relative density outside right-of-way.

4. Class III and Class IVA Backfill Material:
   a. Compact to at least 95% of Standard Proctor Density within right-of-way.
   b. Compact to at least 90% of Standard Proctor Density outside right-of-way.
   c. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

5. In areas to remain unpaved, terminate backfill material 8 inches below finished grade. Use topsoil for the final 8 inches above trench backfill material.

6. Terminate backfill material at subgrade elevation in areas to be paved.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.12 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use satisfactory soil material.
   3. Under steps and ramps, use engineered fill.
   4. Under building slabs, use engineered fill.
   5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.13 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
   2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
3.14 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.15 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1/2 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.16 SUBSURFACE DRAINAGE

A. Subdrainage Pipe: Specified in Section 334600 “Subdrainage.”

B. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 4-inch course of filter material on subsurface drainage
geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 24 inches of filter material, placed in compacted layers 6 inches thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 12 inches.

1. Compact each filter material layer to 85 percent of maximum dry unit weight according to ASTM D 698 with a minimum of two passes of a plate-type vibratory compactor.

C. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches of final subgrade, in compacted layers 6 inches thick. Overlay drainage backfill with one layer of subsurface drainage geotextile, overlapping sides and ends at least 12 inches.

1. Compact each filter material layer to 85 percent of maximum dry unit weight according to ASTM D 698 (with a minimum of two passes of a plate-type vibratory compactor.
2. Place and compact impervious fill over drainage backfill in 6-inch-thick compacted layers to final subgrade.

3.17 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course under pavements and walks as follows:

1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course material over subbase course under hot-mix asphalt pavement.
3. Shape subbase course to required crown elevations and cross-slope grades.
4. Place subbase course 6 inches or less in compacted thickness in a single layer.
5. Place subbase course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
6. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

C. Pavement Shoulders: Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase layer to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.18 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.
B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.19 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material and maximum lift thickness comply with requirements.
3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
4. See Soils Report for any special situations or instructions.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft or less of paved area or building slab, but in no case fewer than three tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length, but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length, but no fewer than two tests.
F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.
   1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.
   B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY
   A. Section Includes:
      1. Site Concrete.

1.3 DEFINITIONS
   A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.4 INFORMATIONAL SUBMITTALS
   A. Qualification Data: For qualified ready-mix concrete manufacturer.
   B. Material Certificates: For the following, from manufacturer:
      1. Cementitious materials.
      2. Steel reinforcement and reinforcement accessories.
      3. Fiber reinforcement.
      4. Admixtures.
      5. Curing compounds.
      7. Bonding agent or epoxy adhesive.
   C. Field quality-control reports.
1.5 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

B. Concrete Testing Service: Owner will engage TEAM SERVICES, a qualified testing agency, to perform tests and inspections.

C. ACI Publications: Comply with ACI 301 unless otherwise indicated.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

B. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars; zinc coated Cut bars true to length with ends square and free of burrs.

C. Tie Bars: ASTM A 615/A 615M, Grade 60 deformed.

D. Hook Bolts: ASTM A 307, Grade A internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from...
steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

F. Zinc Repair Material: ASTM A 780.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150, gray portland cement type 1. Supplement with the following:
   a. Fly Ash: ASTM C 618, Class C.
   b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100.

A. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches or 1 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

B. Water: Potable and complying with ASTM C 94/C 94M.


D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. BASF Construction Chemicals, LLC; Confilm.
      b. Euclid Chemical Company (The), an RPM company; Eucobar.
      c. Meadows, W. R., Inc.; EVAPRE.
      d. Sika Corporation, Inc.; SikaFilm.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. Euclid Chemical Company (The), an RPM company; Euco Rez-Seal.
      b. Meadows, W. R., Inc.; 1100-CLEAR SERIES.

2.5 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber ASTM D 1752, cork or self-expanding cork in preformed strips.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

A. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. Euclid Chemical Company (The), an RPM company; Surface Retarder Formula S.
      b. Meadows, W. R., Inc.; TOP-STOP.
      c. Sika Corporation, Inc.; Rugasol-S.
2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 30, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.

B. Proportion mixtures to provide normal-weight concrete with the following properties:

2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

1. Air Content: Target 7 percent plus or minus 1.5 percent, measured on grade prior to consolidation.

A. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in concrete as required for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

B. Cementitious Materials: Use fly ash, and ground granulated blast-furnace slag as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20 percent.
2. Ground Granulated Blast-Furnace Slag: 35 percent.
3. Combined Fly Ash and Ground Granulated Blast-Furnace Slag: 40 percent.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete batches larger than 1 cu. yd. increase mixing time by 15 seconds for each additional 1 cu. yd.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

   1. Completely proof-roll subbase. Limit vehicle speed to 3 mph.
   2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
   3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete paving:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finish. Retain first subparagraph below if dowelled contraction joints are required and if tolerance, coordinated with dowel length, is not indicated on Drawings. See Evaluations.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

C. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement and joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

J. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

K. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to
control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture. Intent is to match texture and finish of existing walks.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at
least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch
3. Surface: Gap below 10-foot-long, unleveled straightedge not to exceed 1/2 inch
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
5. Lateral Alignment and Spacing of Dowels: 1 inch
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage TEAM SERVICES, a qualified testing agency, to perform tests and inspections.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
   
   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
   a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

I. Prepare test and inspection reports.

3.11 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

3.12 CONCRETE WASHOUT

A. Perform washout using proper disposal and washout practices. Perform washing of concrete trucks, chutes, buckets, pumps, hoppers, wheelbarrows and all other tools and equipment used for concrete mixing and transportation.

B. Washout shall occur off site or in designated areas.

1. Do not discharge concrete washout into storm drains, catch basins or to the sanitary sewer system.
2. Designated areas shall be located by the contractor at least seven days prior to concrete placement.
3. Designated areas shall have tanks, tubs, containers or other effective means of containment so that wash water and residual cementitious solids are not allowed to contact the soil or other plant life.
4. Contractor shall size the containers adequately to handle the amount of washout, and cover them so that rainwater does not cause the containers to overflow.
SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.

B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Cold-applied joint sealants.
2. Hot-applied joint sealants.

B. Related Sections:

1. Section 079200 "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.
2. Section 321313 "Concrete Paving" for constructing joints in concrete pavement.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Pavement-Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of joint sealant and accessory, from manufacturer.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of joint sealant from single source from single manufacturer.
1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

A. Colors of Exposed Joint Sealants: As selected by Owner from manufacturer's full range.

2.2 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Silicone Joint Sealant for Concrete: ASTM D 5893, Type NS.

1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Crafo Inc., an ERGON company; RoadSaver Silicone.
   b. Dow Corning Corporation; 888.
   c. Pecora Corporation; 301 NS.

B. Single-Component, Self-Leveling, Silicone Joint Sealant for Concrete: ASTM D 5893, Type SL.

1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Crafo Inc., an ERGON company; RoadSaver Silicone SL.
   b. Dow Corning Corporation; 890-SL.
   c. Pecora Corporation; 300 SL.
C. Multicomponent, Pourable, Traffic-Grade, Urethane Joint Sealant for Concrete: ASTM C 920, Type M, Grade P, Class 25, for Use T.

1. **Products:** Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

   a. **Pecora Corporation:** Urexpans NR-200.

2.3 HOT-APPLIED JOINT SEALANTS


1. **Products:** Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

   a. **Crafco Inc., an ERGON company:** Superseal 444/777.


1. **Products:** Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

   a. **Meadows, W. R., Inc.;** [Sealtight Hi-Spec] [Sealtight 3405].
   b. **Right Pointe:** D-3405 Hot Applied Sealant.

2.4 JOINT-SEALANT BACKER MATERIALS

A. **General:** Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. **Round Backer Rods for Cold- and Hot-Applied Joint Sealants:** ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. **Backer Strips for Cold- and Hot-Applied Joint Sealants:** ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
2.5 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install joint-sealant backings of kind indicated to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backings.
2. Do not stretch, twist, puncture, or tear joint-sealant backings.
3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
D. Install joint sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place joint sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING

A. Clean off excess joint sealant or sealant smears adjacent to joints as the Work progresses, by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.6 PAVEMENT-JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Joints within cement concrete pavement.

1. Joint Location:

   c. Joints between steel columns, steel fabricated patio railings and gates, and cast-in-place concrete pavement.
   d. Other joints as indicated.
3. Urethane Joint Sealant for Concrete: Multicomponent, pourable, traffic-grade.
5. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 321373
SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   
   A. This project may require extended work hours in order to meet the completion date. See Division 00210 Specification Sections for Schedule Requirements and Phasing.
   
   B. Drawings and general provisions of the Contract, including General and Supplemental Conditions of the Contract, apply to this Section.

1.2 SUMMARY
   
   A. Section Includes:
      
      1. Sodding.

1.3 DEFINITIONS
   
   A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
   
   B. Finish Grade: Elevation of finished surface of planting soil.
   
   C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
   
   D. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
   
   E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.
   
   F. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
   
   G. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 INFORMATIONAL SUBMITTALS
   
   A. Qualification Data: For qualified landscape Installer.
B. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required initial maintenance periods.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in the following category from the Professional Landcare Network:
   a. Certified Turfgrass Professional, designated CTP.

5. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.

B. Preinstallation Conference: Conduct conference at project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk granular bedding, and soil amendments with appropriate certificates.
1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.8 MAINTENANCE SERVICE

A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:

1. Sodded Turf: 90 days from date of planting completion.

PART 2 - PRODUCTS

2.1 TURFGRASS SOD

A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

B. Turfgrass Species: Sod of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:

1. Full Sun: Kentucky bluegrass (Poa pratensis), a minimum of three cultivars.

2. Sun and Partial Shade: Proportioned by weight as follows:

   a. 50 percent Kentucky bluegrass (Poa pratensis).
   b. 30 percent chewings red fescue (Festuca rubra variety).
   c. 10 percent perennial ryegrass (Lolium perenne).
   d. 10 percent redtop (Agrostis alba).

3. Shade: Proportioned by weight as follows:

   a. 50 percent chewings red fescue (Festuca rubra variety).
   b. 35 percent rough bluegrass (Poa trivialis).
   c. 15 percent redtop (Agrostis alba).
2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
   1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
   1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 EROSION-CONTROL MATERIALS

A. Erosion-Control Mats: Cellular, non-biodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of 3-inch nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
   1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
   2. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
   3. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.
3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

A. Limit turf subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

A. Prepare area as specified in "Turf Area Preparation" Article.

B. Fill cells of erosion-control mat with planting soil and compact before planting.

C. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.

D. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses.
Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across angle of slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.6 TURF MAINTENANCE

A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow Kentucky bluegrass to a height of 1-1/2 to 2 inches.

D. Turf Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

3.7 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:
   1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.8 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

C. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Tags.
   B. Pipe markers.

1.02 RELATED REQUIREMENTS
   A. Section 099123 - Interior Painting: Identification painting.

1.03 REFERENCE STANDARDS

PART 2 PRODUCTS

2.01 PLUMBING COMPONENT IDENTIFICATION GUIDELINE
   A. Pipe Markers: 3/4 inch diameter and higher.

2.02 IDENTIFICATION APPLICATIONS
   A. Piping: Pipe markers.
   B. Valves: Tags.

2.03 TAGS
   A. Metal: Brass, 19 gauge 1-1/2 inch in diameter with smooth edges, blank, smooth edges, and corrosion-resistant ball chain. Up to three lines of text.

2.04 PIPE MARKERS
   A. Comply with ASME A13.1.
   B. Flexible Marker: Factory fabricated, semi-rigid, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid conveyed.
   C. Flexible Tape Marker: Flexible, vinyl film tape with pressure-sensitive adhesive backing and printed markings.
   D. Identification Scheme, ASME A13.1:
      1. Primary: External Pipe Diameter, Uninsulated or Insulated.
      2. Secondary: Color scheme per fluid service.
         a. Water; Potable, Cooling, Boiler Feed, and Other: White text on green background.

PART 3 EXECUTION

3.01 PREPARATION
   A. Degrease and clean surfaces to receive identification products.

3.02 INSTALLATION
   A. Install tags in clear view and align with axis of piping

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
A. Piping insulation.
B. Jackets and accessories.

1.02 RELATED REQUIREMENTS
A. Section 078400 - Firestopping.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
B. Applicator Qualifications: Company specializing in performing the type of work specified in this section and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

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
A. Manufacturers:
   1. CertainTeed Corporation: www.certainteed.com
   2. Johns Manville Corporation: www.jm.com
   4. Owens Corning Corporation: www.ocbuildingspec.com
   5. Substitutions: See Section 016000 - Product Requirements.
B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
   1. K Value: ASTM C177, 0.24 at 75 degrees F.
   2. Maximum Service Temperature: 850 degrees F.
   3. Maximum Moisture Absorption: 0.2 percent by volume.
C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.
D. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
E. Vapor Barrier Lap Adhesive: Compatible with insulation.

2.03 JACKETS
A. PVC Plastic.
   1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
      a. Minimum Service Temperature: 0 degrees F.
      b. Maximum Service Temperature: 150 degrees F.
      c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
      d. Thickness: 10 mil.
      e. Connections: Brush on welding adhesive.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify that piping has been tested before applying insulation materials.
B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.
C. Exposed Piping: Locate insulation and cover seams in least visible locations.
D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
E. Glass fiber insulated pipes conveying fluids below ambient temperature:
   1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
   2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
G. Glass fiber insulated pipes conveying fluids above ambient temperature:
   1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
   2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
H. Inserts and Shields:
   1. Application: Piping 1-1/2 inches diameter or larger.
   2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
   3. Insert Location: Between support shield and piping and under the finish jacket.
   4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 078400.

J. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with PVC jacket and fitting covers.

3.03 SCHEDULES

A. Plumbing Systems:
   1. Domestic Cold Water Supply:
      a. Glass Fiber Insulation:
         1) Thickness: 1 inch.
   2. Domestic Hot Water Supply:
      a. Glass Fiber Insulation:
         1) Thickness: 1 inch.

END OF SECTION
SECTION 221005
PLUMBING PIPING

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Pipe, pipe fittings, specialties, and connections for piping systems.
   1. Sanitary sewer.
   2. Domestic water.
   3. Flanges, unions, and couplings.
   4. Pipe hangers and supports.
   5. Ball valves.

1.02 RELATED REQUIREMENTS
A. Section 220719 - Plumbing Piping Insulation.

1.03 REFERENCE STANDARDS
A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2018.
N. AWWA C651 - Disinfecting Water Mains 2014.
1.04 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
C. Project Record Documents: Provide electronic copy of completed As-Built drawings within 30 days of substantial completion.

1.05 QUALITY ASSURANCE
A. Perform work in accordance with applicable codes.
B. Identify pipe with marking including size, ASTM material classification, ASTM specification, water pressure rating.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.07 FIELD CONDITIONS
A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS
2.01 GENERAL REQUIREMENTS
A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 SANITARY SEWER PIPING, BURIED BEYOND 5 FEET OF BUILDING
A. Cast Iron Pipe: ASTM A74 service weight.
   1. Fittings: Cast iron.
   2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.

2.03 GREASE SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING
A. Cast Iron Pipe: ASTM A74 extra heavy weight.
   1. Fittings: Cast iron.
   2. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum.

2.04 SANITARY SEWER PIPING, ABOVE GRADE
A. Cast Iron Pipe: ASTM A74, service weight.
   1. Fittings: Cast iron.
   2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.
B. Cast Iron Pipe: CISPI 301, hubless, service weight.
   1. Fittings: Cast iron.
C. Copper Tube: ASTM B306, DWV.
2.05 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
   3. Mechanical Press Sealed Fittings: Double-pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, nontoxic, synthetic rubber sealing elements.

2.06 FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 3 Inches and Under:
   1. Ferrous Pipe: Class 150 malleable iron threaded unions.
   2. Copper Tube and Pipe: Class 150 bronze unions with soldered joints.

B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.07 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
   3. Trapeze Hangers: Welded steel channel frames attached to structure.

B. Plumbing Piping - Drain, Waste, and Vent:
   1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
   2. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
   3. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

C. Plumbing Piping - Water:
   1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.

D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:

2.08 BALL VALVES

A. Manufacturers:

B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze body, 304 stainless steel ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, 1/4-turn thumb or lever handle with balancing stops, solder ends with union.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt, on inside and outside, before assembly.
C. Prepare piping connections to equipment with flanges or unions.
3.03 INSTALLATION

A. Install in accordance with manufacturer’s instructions.
B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
E. Group piping whenever practical at common elevations.
F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
G. Provide access where valves and fittings are not exposed.
   1. Coordinate size and location of access doors with Section 083100.
H. Prepare exposed, unfinished pipe, fittings, supports, and accessories for finish painting.
   1. See Section 099123 for painting of interior plumbing systems and components.
I. Install water piping to ASME B31.9.
J. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
K. Pipe Hangers and Supports:
   1. Install in accordance with ASME B31.9.
   2. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
   3. Place hangers within 12 inches of each horizontal elbow.
   4. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
   5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   6. Provide copper plated hangers and supports for copper piping.
   7. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
      a. Painting of interior plumbing systems and components is specified in Section 099123.
   8. Support cast iron drainage piping at every joint.
L. 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.

3.04 APPLICATION

A. Install unions downstream of valves and at equipment or apparatus connections.
B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
C. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

3.05 TOLERANCES

A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.
3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM
A. Prior to starting work, verify system is complete, flushed, and clean.
B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
C. Inject disinfectant, free chlorine in liquid, powder, tablet, or gas form throughout system to obtain 50 to 80 mg/L residual.
D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
E. Maintain disinfectant in system for 24 hours.
F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

3.07 SERVICE CONNECTIONS
A. Provide new sanitary sewer services. Before commencing work, check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

3.08 SCHEDULES
A. Pipe Hanger Spacing:
   1. Metal Piping:
      a. Pipe Size: 1/2 inches to 1-1/4 inches:
         1) Maximum Hanger Spacing: 6.5 ft.
         2) Hanger Rod Diameter: 3/8 inches.
      b. Pipe Size: 1-1/2 inches to 2 inches:
         1) Maximum Hanger Spacing: 10 ft.
         2) Hanger Rod Diameter: 3/8 inch.
      c. Pipe Size: 2-1/2 inches to 3 inches:
         1) Maximum Hanger Spacing: 10 ft.
         2) Hanger Rod Diameter: 1/2 inch.

END OF SECTION
SECTION 221006
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Cleanouts.
   B. Sanitary waste interceptors.

1.02 REFERENCE STANDARDS

1.03 SUBMITTALS
   A. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
   B. Certificates: Certify that grease interceptors meet or exceed specified requirements.
   C. Project Record Documents: Record actual locations of equipment and cleanouts.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING
   A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS
   A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 CLEANOUTS
   A. Manufacturers:
   B. Cleanouts at Exterior Unsurfaced Areas:
      1. Line type with lacquered cast iron body and round epoxy coated gasketed cover.
   C. Cleanouts at Interior Finished Floor Areas:
      1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.
   D. Cleanouts at Interior Finished Wall Areas:
      1. Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.
   E. Cleanouts at Interior Unfinished Accessible Areas: Calked or threaded type. Provide bolted stack cleanouts on vertical rainwater leaders.
2.03 SANITARY WASTE INTERCEPTORS

A. Manufacturers:

B. Grease Interceptors:
   1. Construction:
      b. Rough-in: below exterior grade.
      c. Accessories: Multi-weir baffle assembly, integral deep seal trap, removable integral flow control.
      d. Cover: Steel, epoxy coated, non-skid with gasket, securing handle, and enzyme injection port.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
C. Encase exterior cleanouts in concrete flush with grade.
D. Install floor cleanouts at elevation to accommodate finished floor.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sinks.

1.02 RELATED REQUIREMENTS

A. Section 064100 - Architectural Wood Casework: Preparation of counters for sinks and lavatories.
B. Section 114000 - Foodservice Equipment: Food service sinks.
C. Section 123600 - Countertops: Preparation of counters for sinks and lavatories.

1.03 REFERENCE STANDARDS

A. ASME A112.19.3 - Stainless Steel Plumbing Fixtures 2017, with Errata.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.
B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 REGULATORY REQUIREMENTS

A. Comply with applicable codes for installation of plumbing systems.
B. Perform work in accordance with local health department regulations.

2.03 SINKS

A. Single Compartment Bowl: ASME A112.19.3; 22 by 19-1/2 by 5-1/2 inch outside dimensions 18 gage, 0.05 inch thick, Type 304 stainless steel, self rimming and undercoated, with ledge back drilled for trim.
   1. Drain: 1-1/2 inch chromed brass drain.
PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
B. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

3.02 PREPARATION
A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION
A. Install each fixture with trap, easily removable for servicing and cleaning.
B. Provide chrome plated rigid or flexible supplies to fixtures with screwdriver stops, reducers, and escutcheons.
C. Install components level and plumb.

3.04 INTERFACE WITH WORK OF OTHER SECTIONS
A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING
A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING
A. Clean plumbing fixtures and equipment.

3.07 PROTECTION
A. Protect installed products from damage due to subsequent construction operations.
B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION
SECTION 260505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Electrical demolition.

PART 3 EXECUTION
2.01 EXAMINATION
A. Verify field measurements and circuiting arrangements are as indicated.
B. Verify that abandoned wiring and equipment serve only abandoned facilities.
C. Demolition drawings are based on casual field observation and existing record documents.
D. Report discrepancies to Engineer before disturbing existing installation.
E. Beginning of demolition means installer accepts existing conditions.

2.02 PREPARATION
A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
B. Coordinate utility service outages with utility company.
C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.

2.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK
A. Remove, relocate, and extend existing installations to accommodate new construction.
B. Remove abandoned wiring to source of supply.
C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
E. Repair adjacent construction and finishes damaged during demolition and extension work.
F. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

2.04 CLEANING AND REPAIR
A. See Section 017419 - Construction Waste Management and Disposal for additional requirements.
B. Clean and repair existing materials and equipment that remain or that are to be reused.
C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION
SECTION 260519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Single conductor building wire.
B. Manufactured wiring systems.
C. Wiring connectors.
D. Electrical tape.
E. Heat shrink tubing.
F. Oxide inhibiting compound.
G. Wire pulling lubricant.
H. Cable ties.

1.02 RELATED REQUIREMENTS
A. Section 078400 - Firestopping.

1.03 REFERENCE STANDARDS
F. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
I. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.
1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
   3. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing of conduits 2" and larger.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.
B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.
B. Provide products listed, classified, and labeled as suitable for the purpose intended.
C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
D. Comply with NEMA WC 70.
E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
G. Conductors and Cables Installed Exposed in Spaces Used for Environmental Air (only where specifically permitted): Plenum rated, listed and labeled as suitable for use in return air plenums.
H. Conductor Material:
   1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
   2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
   3. Tinned Copper Conductors: Comply with ASTM B33.
I. Minimum Conductor Size:
   1. Branch Circuits: 12 AWG.
      a. Exceptions:
         1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
         2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.

J. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

K. Conductor Color Coding:
   1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
   2. Color Coding Method: Integrally colored insulation.
   3. Color Code:
      a. 208Y/120 V, 3 Phase, 4 Wire System:
         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.
         4) Neutral/Grounded: White.
      c. Travelers for 3-Way and 4-Way Switching: Pink.
      d. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.

2.03 SINGLE CONDUCTOR BUILDING WIRE
   A. Description: Single conductor insulated wire.
   B. Conductor Stranding:
      1. Feeders and Branch Circuits:
         b. Size 8 AWG and Larger: Stranded.
   C. Insulation Voltage Rating: 600 V.
   D. Insulation:
      1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
         a. Size 4 AWG and Larger: Type XHHW-2.

2.04 MANUFACTURED WIRING SYSTEMS
   A. Description: Manufactured wiring assemblies complying with NFPA 70 Article 604, and listed and labeled as complying with UL 183.
   B. Provide components necessary to transition between manufactured wiring system and other wiring methods.
   C. Branch Circuit Cables:
      2. Insulation Voltage Rating: 600 V.
      3. Insulation: Type THHN.
      4. Provide dedicated neutral conductor for each phase conductor where indicated or required.
      5. Grounding: Full-size integral equipment grounding conductor.
      6. Armor: Steel, interlocked tape.
   D. Connectors: Keyed and color-coded to prevent interconnection of different voltages.
   E. Fixture Leads: Type TFN insulation.
2.05 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Wiring Connectors for Splices and Taps:
   1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
   2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.

C. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.

D. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

E. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.

F. Mechanical Connectors: Provide bolted type or set-screw type.

G. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.06 ACCESSORIES

A. Electrical Tape:
   1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
   2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
   3. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.

B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.

C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.

D. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

E. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that work likely to damage wire and cable has been completed.

C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

D. Verify that field measurements are as indicated.

E. Verify that conditions are satisfactory for installation prior to starting work.
3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:
   1. Unless dimensioned, circuit routing indicated is diagrammatic.
   2. When circuit destination is indicated without specific routing, determine exact routing required.
   3. Arrange circuiting to minimize splices.
   4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
   5. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is not permitted.
   6. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer’s instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Installation in Raceway:
   1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   2. Pull all conductors and cables together into raceway at same time.
   3. Do not damage conductors and cables or exceed manufacturer’s recommended maximum pulling tension and sidewall pressure.
   4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

E. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

F. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.

G. Install conductors with a minimum of 12 inches of slack at each outlet.

H. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

I. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

J. Make wiring connections using specified wiring connectors.
   1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
   2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
   3. Do not remove conductor strands to facilitate insertion into connector.
   4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
   5. Mechanical Connectors: Secure connections according to manufacturer’s recommended torque settings.
6. **Compression Connectors:** Secure connections using manufacturer's recommended tools and dies.

K. **Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.**
   1. **Dry Locations:** Use insulating covers specifically designed for the connectors.
   2. **Damp Locations:** Use heat shrink tubing.
      a. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
   3. **Wet Locations:** Use heat shrink tubing.

L. **Insulate ends of spare conductors using vinyl insulating electrical tape.**

M. **Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.**

N. **Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.**

### 3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is not required. The resistance test for parallel conductors listed as optional is not required.

D. Correct deficiencies and replace damaged or defective conductors and cables.

**END OF SECTION**
SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Grounding and bonding requirements.
   B. Conductors for grounding and bonding.
   C. Connectors for grounding and bonding.

1.02 RELATED REQUIREMENTS
   A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
   B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS
   A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
   B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 QUALITY ASSURANCE
   A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS
   A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
   C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
   D. Bonding and Equipment Grounding:
      1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
      2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
      3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
      4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
      5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
      6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 260526:
1. Use insulated copper conductors unless otherwise indicated.
   a. Exceptions:
      1) Use bare copper conductors where installed underground in direct contact with earth.
      2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that work likely to damage grounding and bonding system components has been completed.
B. Verify that field measurements are as indicated.
C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION
A. Install products in accordance with manufacturer’s instructions.
B. Perform work in accordance with NECA 1 (general workmanship).
C. Make grounding and bonding connections using specified connectors.
   1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
   2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
   3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer’s recommendations.
   4. Mechanical Connectors: Secure connections according to manufacturer’s recommended torque settings.
   5. Compression Connectors: Secure connections using manufacturer’s recommended tools and dies.
D. Identify grounding and bonding system components in accordance with Section 260553.

END OF SECTION
SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast-in-Place Concrete: Concrete equipment pads.

1.03 REFERENCE STANDARDS


D. MFMA-4 - Metal Framing Standards Publication 2004.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
   2. Coordinate the work with other trades to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
   4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
   5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 033000.

1.05 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with applicable building code.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer’s application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
5. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
   a. Indoor Dry Locations: Use zinc-plated steel unless otherwise indicated.
   b. Outdoor and Damp or Wet Indoor Locations: Use stainless steel unless otherwise indicated.
   c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
   d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
   1. Conduit Straps: One-hole or two-hole type; malleable iron.
   2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.

D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.

E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
   1. Minimum Size, Unless Otherwise Indicated or Required:
      a. Equipment Supports: 1/2 inch diameter.
      b. Single Conduit up to 1 inch (27 mm) trade size: 1/4 inch diameter.
      c. Single Conduit larger than 1 inch (27 mm) trade size: 3/8 inch diameter.
      d. Trapeze Support for Multiple Conduits: 3/8 inch diameter.
      e. Outlet Boxes: 1/4 inch diameter.
      f. Luminaires: 1/4 inch diameter.

F. Non-Penetrating Rooftop Supports for Low-Slope Roofs: Steel pedestals with thermoplastic or rubber bases that rest on top of roofing membrane, not requiring any attachment to the roof structure and not penetrating the roofing assembly, with support fixtures as specified.
   1. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
   2. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports.
   3. Mounting Height: Provide minimum clearance of 6 inches under supported component to top of roofing.

G. Anchors and Fasteners:
   1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
   2. Concrete: Use expansion anchors.
   3. Solid or Grout-Filled Masonry: Use expansion anchors.
   7. Plastic and lead anchors are not permitted.
PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that field measurements are as indicated.
B. Verify that mounting surfaces are ready to receive support and attachment components.
C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION
A. Install products in accordance with manufacturer's instructions.
B. Perform work in accordance with NECA 1 (general workmanship).
C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.
E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.
F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
G. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
   2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
H. Secure fasteners according to manufacturer's recommended torque settings.
I. Remove temporary supports.

3.03 FIELD QUALITY CONTROL
A. See Section 014000 - Quality Requirements, for additional requirements.
B. Inspect support and attachment components for damage and defects.
C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
D. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION
SECTION 260533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Galvanized steel rigid metal conduit (RMC).
B. Intermediate metal conduit (IMC).
C. Electrical metallic tubing (EMT).
D. Conduit fittings.

1.02 RELATED REQUIREMENTS
A. Section 078400 - Firestopping.
B. Section 260526 - Grounding and Bonding for Electrical Systems.
C. Section 260529 - Hangers and Supports for Electrical Systems.

1.03 REFERENCE STANDARDS
D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
G. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
I. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordination:
1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.05 QUALITY ASSURANCE
A. Comply with requirements of NFPA 70.
1.06 DELIVERY, STORAGE, AND HANDLING
   A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS
   A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
   B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
   C. Concealed Within Masonry Walls: Use electrical metallic tubing (EMT).
   D. Concealed Within Hollow Stud Walls: Use electrical metallic tubing (EMT).
   E. Concealed Above Accessible Ceilings: Use electrical metallic tubing (EMT).
   F. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
      1. Locations subject to physical damage include, but are not limited to:
         a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
   G. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).

2.02 CONDUIT REQUIREMENTS
   A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
   B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
   C. Provide products listed, classified, and labeled as suitable for the purpose intended.
   D. Minimum Conduit Size, Unless Otherwise Indicated:
      1. Branch Circuits: 1/2 inch (16 mm) trade size.
      2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
      3. Control Circuits: 1/2 inch (16 mm) trade size.
   E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
   A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
   B. Fittings:
      1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
      2. Material: Use steel or malleable iron.
      3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.
2.04 INTERMEDIATE METAL CONDUIT (IMC)

A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

B. Fittings:
   1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.05 ELECTRICAL METALLIC TUBING (EMT)

A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

B. Fittings:
   1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use compression (gland) or set-screw type.
      a. Do not use indenter type connectors and couplings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.
B. Verify that mounting surfaces are ready to receive conduits.
C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.
B. Perform work in accordance with NECA 1 (general workmanship).
C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
D. Install intermediate metal conduit (IMC) in accordance with NECA 101.
E. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated without specific routing, determine exact routing required.
   3. Conceal all conduits unless specifically indicated to be exposed.
   4. Conduits in the following areas may be exposed, unless otherwise indicated:
      a. Within joists in areas with no ceiling.
   5. Unless otherwise approved, do not route conduits exposed:
      a. Across floors.
      b. Across roofs.
      c. Across top of parapet walls.
      d. Across building exterior surfaces.
   6. Arrange conduit to maintain adequate headroom, clearances, and access.
   7. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
   8. Arrange conduit to provide no more than 150 feet between pull points.
   9. Route conduits above water and drain piping where possible.
   10. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
   11. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
12. Maintain minimum clearance of 12 inches between conduits and hot surfaces.
13. Group parallel conduits in the same area together on a common rack.

F. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
4. Use conduit strap to support single surface-mounted conduit.
   a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel (strut) with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use non-penetrating rooftop supports to support conduits routed across rooftops (only where approved).
9. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with the most stringent requirements.

G. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
5. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
6. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

H. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.
I. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
   1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
   2. Where conduits are subject to earth movement by settlement or frost.

J. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
   1. Where conduits pass from outdoors into conditioned interior spaces.
   2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

K. Provide grounding and bonding in accordance with Section 260526.

3.03 FIELD QUALITY CONTROL
   A. See Section 014000 - Quality Requirements, for additional requirements.
   B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
   C. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING
   A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION
   A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION
SECTION 260533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 RELATED REQUIREMENTS
A. Section 083100 - Access Doors and Panels: Panels for maintaining access to concealed boxes.
B. Section 260529 - Hangers and Supports for Electrical Systems.
C. Section 260533.13 - Conduit for Electrical Systems:
   1. Conduit bodies and other fittings.
   2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.
D. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
E. Section 262726 - Wiring Devices:
   1. Wall plates.
   2. Additional requirements for locating boxes for wiring devices.
F. Section 271000 - Structured Cabling: Additional requirements for communications systems outlet boxes.

1.03 REFERENCE STANDARDS
A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
E. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports 2013.
F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide manufacturer's standard catalog pages and data sheets for floor boxes.
C. Project Record Documents: Record actual locations for outlet and device boxes, pull boxes, cabinets and enclosures, and floor boxes.

1.06 QUALITY ASSURANCE
A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING
A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS
2.01 BOXES
A. General Requirements:
1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use suitable masonry type boxes where flush-mounted in masonry walls.
4. Use raised covers suitable for the type of wall construction and device configuration where required.
5. Use shallow boxes where required by the type of wall construction.
6. Do not use "through-wall" boxes designed for access from both sides of wall.
7. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
8. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
10. Minimum Box Size, Unless Otherwise Indicated:
   a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
   b. Communications Systems Outlets: Comply with Section 271000.

11. Wall Plates: Comply with Section 262726.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
   1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
   2. NEMA 250 Environment Type, Unless Otherwise Indicated:
      a. Indoor Clean, Dry Locations: Type 1, painted steel.
      b. Outdoor Locations: Type 3R, painted steel.
   3. Junction and Pull Boxes Larger Than 100 cubic inches:
      a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
   4. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that field measurements are as indicated.
   B. Verify that mounting surfaces are ready to receive boxes.
   C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION
   A. Install products in accordance with manufacturer’s instructions.
   B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
   C. Arrange equipment to provide minimum clearances in accordance with manufacturer’s instructions and NFPA 70.
   D. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
   E. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
   F. Box Locations:
      1. Locate boxes to be accessible. Provide access panels in accordance with Section 083100 as required where approved by the Architect.
      2. Unless dimensioned, box locations indicated are approximate.
      3. Locate boxes as required for devices installed under other sections or by others.
         a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 262726.
         b. Communications Systems Outlets: Comply with Section 271000.
      4. Locate boxes so that wall plates do not span different building finishes.
      5. Locate boxes so that wall plates do not cross masonry joints.
      6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
      7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.
      8. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
      9. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 260533.13.
10. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
   a. Concealed above accessible suspended ceilings.

G. Box Supports:
   1. Secure and support boxes in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
   2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
   3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
   4. Use far-side support to secure flush-mounted boxes supported from single stud in hollow stud walls. Repair or replace supports for boxes that permit excessive movement.

H. Install boxes plumb and level.

I. Flush-Mounted Boxes:
   1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
   2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
   3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

J. Install boxes as required to preserve insulation integrity.

K. Metallic Floor Boxes: Install box level at the proper elevation to be flush with finished floor.

L. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.

N. Close unused box openings.

O. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

P. Provide grounding and bonding in accordance with Section 260526.

Q. Identify boxes in accordance with Section 260553.

3.03 CLEANING
   A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION
   A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION
SECTION 260533.23
SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Surface raceway systems.

1.02 RELATED REQUIREMENTS
A. Section 260526 - Grounding and Bonding for Electrical Systems.
B. Section 260529 - Hangers and Supports for Electrical Systems.
C. Section 260533.13 - Conduit for Electrical Systems.
D. Section 260533.16 - Boxes for Electrical Systems.
E. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
F. Section 262726 - Wiring Devices: Receptacles.

1.03 REFERENCE STANDARDS
A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
C. UL 5 - Surface Metal Raceways and Fittings Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordination:
   1. Coordinate the placement of raceways with millwork, furniture, equipment, etc. installed under other sections or by others.
   2. Coordinate rough-in locations of outlet boxes provided under Section 260533.16 and conduit provided under Section 260533.13 as required for installation of raceways provided under this section.
   3. Verify minimum sizes of raceways with the actual conductors and components to be installed.
   4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
B. Sequencing:
   1. Do not install raceways until final surface finishes and painting are complete.
   2. Do not begin installation of conductors and cables until installation of raceways is complete between outlet, junction and splicing points.

1.05 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide manufacturer's standard catalog pages and data sheets including dimensions, knockout sizes and locations, materials, fabrication details, finishes, service condition requirements, and accessories.
   1. Surface Raceway Systems: Include information on fill capacities for conductors and cables.
1.06 QUALITY ASSURANCE
   A. Comply with requirements of NFPA 70.
   B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING
   A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 RACEWAY REQUIREMENTS
   A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
   B. Provide products listed, classified, and labeled as suitable for the purpose intended.
   C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.02 SURFACE RACEWAY SYSTEMS
   A. Manufacturers:
      2. Wiremold, a brand of Legrand North America, Inc: www.legrand.us.
   B. Surface Metal Raceways: Listed and labeled as complying with UL 5.
   C. Surface Nonmetallic Raceways: Listed and labeled as complying with UL 5A.
   D. Multioutlet Assemblies: Listed and labeled as complying with UL 111.
   E. Surface Raceway System:
      1. Raceway Type: Single channel, painted steel.
      2. Length: As indicated on the drawings.
      3. Color: To be selected by Architect.
      4. Accessory Device Boxes: Suitable for the devices to be installed; color to match raceway.
      5. Integrated Device Provisions:
         a. Receptacles:
            1) Comply with Section 262726.
            2) Configuration: As indicated on the drawings.
            3) Color: Match raceway.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that field measurements are as indicated.
   B. Verify that outlet boxes and conduit terminations are installed in proper locations and are properly sized in accordance with NFPA 70 to accommodate raceways.
   C. Verify that mounting surfaces are ready to receive raceways and that final surface finishes are complete, including painting.
   D. Verify that conditions are satisfactory for installation prior to starting work.
3.02 INSTALLATION
   A. Install products in accordance with manufacturer’s instructions.
   B. Perform work in accordance with NECA 1 (general workmanship).
   C. Install raceways plumb and level.
   D. Secure and support raceways in accordance with Section 260529 at intervals complying with NFPA 70 and manufacturer’s requirements.
   E. Close unused raceway openings.
   F. Provide grounding and bonding in accordance with Section 260526.
   G. Identify raceways in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL
   A. See Section 014000 - Quality Requirements, for additional requirements.
   B. Inspect raceways for damage and defects.
   C. Surface Raceway Systems with Integrated Devices: Test each wiring device to verify operation and proper polarity.
   D. Correct wiring deficiencies and replace damaged or defective raceways.

3.04 CLEANING
   A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 PROTECTION
   A. Protect installed raceways from subsequent construction operations.

END OF SECTION
PART 1 GENERAL
1.01 SECTION INCLUDES
A. Electrical identification requirements.
B. Identification nameplates and labels.
C. Wire and cable markers.
D. Voltage markers.
1.02 RELATED REQUIREMENTS
A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
B. Section 262726 - Wiring Devices - Lutron: Device and wallplate finishes; factory pre-marked wallplates.
C. Section 271000 - Structured Cabling: Identification for communications cabling and devices.
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. Coordination:
   1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.
B. Sequencing:
   1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
   2. Do not install identification products until final surface finishes and painting are complete.
1.05 QUALITY ASSURANCE
A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS
2.01 IDENTIFICATION REQUIREMENTS
A. Identification for Equipment:
   1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
B. Identification for Conductors and Cables:
   1. Color Coding for Power Conductors 600 V and Less: Comply with Section 260519.
   2. Identification for Communications Conductors and Cables: Comply with Section 271000.
   3. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
   4. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:
      a. Within boxes when more than one circuit is present.
      b. In cable tray, at maximum intervals of 20 feet.
C. Identification for Raceways:
   1. Use voltage markers to identify highest voltage present for accessible conduits at maximum intervals of 20 feet.

D. Identification for Boxes:
   1. Use voltage markers to identify highest voltage present.
   2. Use identification labels to identify circuits enclosed.
      a. For exposed boxes in public areas, provide identification on inside face of cover.

E. Identification for Devices:
   1. Identification for Communications Devices: Comply with Section 271000.
   2. Wiring Device and Wallplate Finishes: Comply with Section 262726.
   3. Use identification label or engraved wallplate to identify serving branch circuit for all receptacles.
      a. For receptacles in public areas or in areas as directed by Architect, provide identification on inside surface of wallplate.
   4. Use identification label or engraved wallplate to identify load controlled for wall-mounted control devices controlling loads that are not visible from the control location and for multiple wall-mounted control devices installed at one location.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
   1. Materials:
      a. Indoor Clean, Dry Locations: Use plastic nameplates.
      b. Outdoor Locations: Use stainless steel nameplates suitable for exterior use.
   2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
   3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
   4. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.

B. Identification Labels:
   1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
      a. Use only for indoor locations.
   2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Receptacle Identification:
   1. Minimum Size: 3/8 inch by 1.5 inches.
   2. Legend: Power source and circuit number or other designation indicated.
      a. Include voltage and phase for other than 120 V, single phase circuits.
   3. Text: All capitalized unless otherwise indicated.
   5. Color: Black text on clear background.

D. Format for Control Device Identification:
   1. Minimum Size: 3/8 inch by 1.5 inches.
   2. Legend: Load controlled or other designation indicated.
   3. Text: All capitalized unless otherwise indicated.
   5. Color: Black text on clear background.
2.03 WIRE AND CABLE MARKERS
   A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
   B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
   C. Legend: Power source and circuit number or other designation indicated.
   D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
      1. Do not use handwritten text.
   E. Minimum Text Height: 1/8 inch.
   F. Color: Black text on white background unless otherwise indicated.

2.04 VOLTAGE MARKERS
   A. Markers for Conduits: Use factory pre-printed self-adhesive vinyl, self-adhesive vinyl cloth, or vinyl snap-around type markers.
   B. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.
   C. Minimum Size:
      1. Markers for Conduits: As recommended by manufacturer for conduit size to be identified.
      2. Markers for Pull Boxes: 1 1/8 by 4 1/2 inches.
   D. Legend:
      1. Markers for Voltage Identification: Highest voltage present.
   E. Color: Black text on orange background unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION
   A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION
   A. Install products in accordance with manufacturer's instructions.
   B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
      3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
      4. Elevated Equipment: Legible from the floor or working platform.
      5. Interior Components: Legible from the point of access.
      6. Conduits: Legible from the floor.
      7. Boxes: Outside face of cover.
      8. Conductors and Cables: Legible from the point of access.
   C. Install identification products centered, level, and parallel with lines of item being identified.
   D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
   E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
A. Wall switches.
B. Receptacles.
C. Wall plates.
D. Floor box service fittings.

1.02 RELATED REQUIREMENTS
A. Section 260533.16 - Boxes for Electrical Systems.
B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS
B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
D. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2015).
E. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2016.
F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordination:
   1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
   2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
   3. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
   4. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.
C. Project Record Documents: Record actual installed locations of wiring devices.

1.06 QUALITY ASSURANCE
A. Comply with requirements of NFPA 70.
B. Products: Listed, classified, and labeled as suitable for the purpose intended.
PART 2 PRODUCTS

2.01 WIRING DEVICE APPLICATIONS
A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
B. For single receptacles installed on an individual branch circuit, provide receptacle with
ampere rating not less than that of the branch circuit.
C. Provide GFCI protection for receptacles installed within 6 feet of sinks.
D. Unless noted otherwise, do not use combination switch/receptacle devices.

2.02 WIRING DEVICE FINISHES
A. Provide wiring device finishes as described below unless otherwise indicated.
B. Wiring Devices: device finish to be selected by architect via submittal process with
stainless steel faceplate, to be confirmed via submittal process.

2.03 RECEPTACLES
A. Manufacturers:
B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and
   NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596;
types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp
      for back wiring with separate ground terminal screw.
   2. NEMA configurations specified are according to NEMA WD 6.
C. Convenience Receptacles:
   1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA
      5-20R; single or duplex as indicated on the drawings.
D. GFCI Receptacles:
   1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection
      and light to indicate ground fault tripped condition and loss of protection; listed as
      complying with UL 943, class A.
      a. Provide test and reset buttons of same color as device.
   2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA
      5-20R, rectangular decorator style.

2.04 WALL PLATES
A. Wall Plates: Comply with UL 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding
      wiring devices.
   3. Screws: Metal with slotted heads finished to match wall plate finish.
B. Stainless Steel Wall Plates: Brushed satin finish, Type 302 stainless steel.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that field measurements are as indicated.
B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and
   are properly sized to accommodate devices and conductors in accordance with NFPA 70.
C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
D. Verify that final surface finishes are complete, including painting.
E. Verify that floor boxes are adjusted properly.
F. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

G. Verify that openings in access floor are in proper locations.

H. Verify that conditions are satisfactory for installation prior to starting work.

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. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of wiring devices provided under this section.
   1. Mounting Heights: Unless otherwise indicated, as follows:
      a. Wall Switches: 48 inches above finished floor.
      b. Receptacles: 18 inches above finished floor or 6 inches above counter.
   2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
   3. Where multiple receptacles are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
   4. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Engineer to obtain direction prior to proceeding with work.

C. Install wiring devices in accordance with manufacturer's instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

E. Where required, connect wiring devices using pigtailed not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.

I. Install wiring devices plumb and level with mounting yoke held rigidly in place.

J. Install wall switches with OFF position down.

K. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.

L. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

M. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

N. Identify wiring devices in accordance with Section 260553.
3.04 FIELD QUALITY CONTROL
   A. See Section 014000 - Quality Requirements, for additional requirements.
   B. Inspect each wiring device for damage and defects.
   C. Operate each wall switch, wall dimmer, and fan speed controller with circuit energized to verify proper operation.
   D. Test each receptacle to verify operation and proper polarity.
   E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.
   F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING
   A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING
   A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION
SECTION 271000
STRUCTURED CABLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Communications system design requirements.
B. Communications pathways.
C. Communications outlets.

1.02 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide manufacturer’s standard catalog pages and data sheets for each product.
C. Sustainable Design Documentation: Submit manufacturer’s product data on cable and cable insulation showing compliance with specified lead content requirements.
D. Evidence of qualifications for installer.
E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.
F. Field Test Reports.
G. Project Record Documents: Prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).
   1. Record actual locations of outlet boxes and distribution frames.
   2. Show as-installed color coding, pair assignment, polarization, and cross-connect layout.
   3. Identify distribution frames and equipment rooms by room number on drawings.
H. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of project record documents.

PART 2 PRODUCTS

2.01 SYSTEM DESIGN

A. Provide a complete permanent system of cabling and pathways for voice and data communications, including cables, conduits and wireways, pull wires, support structures, enclosures and cabinets, and outlets.
   1. Provide fixed cables and pathways that comply with NFPA 70 and TIA-607 and are UL listed or third party independent testing laboratory certified.
   2. Provide connection devices that are rated for operation under conditions of 32 to 140 degrees F at relative humidity of 0 to 95 percent, noncondensing.
   3. In this project, the term plenum is defined as return air spaces above ceilings, inside ducts, under raised floors, and other air-handling spaces.
B. Cabling to Outlets: Specified horizontal cabling, wired in star topology to distribution frame located at center hub of star; also referred to as “links”.

2.02 PATHWAYS

A. Conduit: As specified in Section 260533.13; provide pull cords in all conduit.
B. Cable Trays: Use existing, where applicable.
2.03 COPPER CABLE AND TERMINATIONS

A. Copper Horizontal Cable:
   1. Description: 100 ohm, balanced twisted pair cable complying with TIA-568.2 and listed and labeled as complying with UL 444.
   2. Cable Type - Voice and Data: TIA-568.2 Category 6 UTP (unshielded twisted pair); 23 AWG.
   3. Cable Capacity: 4-pair.
   4. Cable Applications: Use listed NFPA 70 Type CMP plenum cable unless otherwise indicated.
   5. Cable Jacket Color - Voice and Data Cable: Blue.
   6. Product(s):
      a. CommScope; SYSTIMAX Twisted Pair Cables; GigaSPEED XL Category 6 U/UTP Cable: www.commscope.com/#sle.

B. Copper Cable Terminations: Insulation displacement connection (IDC) type using appropriate tool; use screw connections only where specifically indicated.

C. Jacks and Connectors: Modular RJ-45, non-keyed, terminated with 110-style insulation displacement connectors (IDC); high impact thermoplastic housing; suitable for and complying with same standard as specified horizontal cable; UL 1863 listed.
   1. Performance: 500 mating cycles.
   2. Voice and Data Jacks: 8-position modular jack, color-coded for both T568A and T568B wiring configurations.
   3. Product(s):

2.04 COMMUNICATIONS OUTLETS

A. Outlet Boxes: Comply with Section 260533.16.
   1. Provide depth as required to accommodate cable manufacturer's recommended minimum conductor bend radius.

B. Wall Plates:
   1. Comply with system design standards and UL 514C.
   2. Accepts modular jacks/inserts.
   3. Capacity:
      a. Data or Combination Voice/Data Outlets: see drawings.
   4. Wall Plate Material/Finish - Flush-Mounted Outlets: Match wiring device and wall plate finishes specified in Section 262726.

2.05 SOURCE QUALITY CONTROL

A. Factory test cables according to TIA-568 (SET).

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Comply with latest editions and addenda of TIA-568 (SET) (cabling), TIA-569 (pathways), TIA-607 (grounding and bonding), BICSI N1, NFPA 70, and SYSTEM DESIGN as specified in PART 2.

B. Comply with Communication Service Provider requirements.

C. Grounding and Bonding: Perform in accordance with TIA-607 and NFPA 70.
3.02 INSTALLATION OF PATHWAYS

A. Conduit, in Addition to Requirements of Section 260533.13:

B. Outlet Boxes:
   1. Coordinate locations of outlet boxes provided under Section 260533.16 as required for installation of telecommunications outlets provided under this section.
      a. Mounting Heights: Unless otherwise indicated, as follows:
         1) Telephone and Data Outlets: 18 inches above finished floor.
      b. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
      c. Unless otherwise indicated, provide separate outlet boxes for line voltage and low voltage devices.
      d. Locate outlet boxes so that wall plate does not span different building finishes.
      e. Locate outlet boxes so that wall plate does not cross masonry joints.

3.03 INSTALLATION OF EQUIPMENT AND CABLING

A. Cabling:
   1. Do not bend cable at radius less than manufacturer's recommended bend radius; for unshielded twisted pair use bend radius of not less than 4 times cable diameter.
   2. Do not over-cinch or crush cables.
   3. Do not exceed manufacturer's recommended cable pull tension.
   4. When installing in conduit, use only lubricants approved by cable manufacturer and do not chafe or damage outer jacket.

B. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:
   1. At Outlets - Copper: 12 inches.

C. Copper Cabling:
   1. Category 5e and Above: Maintain cable geometry; do not untwist more than 1/2 inch from point of termination.
   2. For 4-pair cables in conduit, do not exceed 25 pounds pull tension.
   3. Use T568B wiring configuration.

D. Identification:
   1. Use wire and cable markers to identify cables at each end.
   2. Use manufacturer-furnished label inserts, identification labels, or engraved wallplate to identify each jack at communications outlets with unique identifier.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Comply with inspection and testing requirements of specified installation standards.

C. Visual Inspection:
   1. Inspect cable jackets for certification markings.
   2. Inspect cable terminations for color coded labels of proper type.
   3. Inspect outlet plates and patch panels for complete labels.

D. Testing - Copper Cabling and Associated Equipment:
   1. Test backbone cables after termination but before cross-connection.
   2. Category 5e and Above Backbone: Perform near end cross talk (NEXT) and attenuation tests.

E. Final Testing: After all work is complete, including installation of telecommunications outlets, and telephone dial tone service is active, test each voice jack for dial tone.

END OF SECTION
PLUMBING DEMOLITION NOTES

1. ALL WORK SHALL COMPLY TO THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE, NATIONALLY OR SOCIALLY ACCEPTABLE STANDARDS FOR THE INSTALLATION OF A WATER SYSTEM. CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL TRADES PRIOR TO START OF WORK.

2. CONTRACTOR SHALL PERMIT SITE VISITS PRIOR TO TO ACCURATELY GATHER ALL REQUIRED WORK TO COMPLETE PROJECT.

3. WORK NOT SPECIFICALLY SHOWN IN DETAIL, REFERENCE OR OTHERWISE IMPLIED, SHALL BE PROVIDED IN ACCORDANCE WITH TRADE OR INDUSTRY BEST PRACTICE.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL REPAIRS OR REPLACEMENT OF EXISTING CONSTRUCTION OR BUILDING ELEMENTS WHICH MAY RESULT IN THE CONTRACTOR OR THEIR SUBCONTRACTORS, OR THEIR WORK REQUIREMENTS TO EXISTING CONSTRUCTION.

5. CONTRACTOR SHALL OBTAIN EXACT LOCATIONS AND SIZES OF ELEMENTS AND ADAPT WORK REQUIREMENTS TO EXISTING EQUIPMENT, FIXTURES, PIPING, VALVES, ETC SHOWN ON THE DRAWINGS ARE AS ACCURATE AS POSSIBLE TO CONFORM TO CONTRACTOR'S REQUIREMENTS.

6. CONTRACTOR SHALL PROPERLY DISPOSE OF ANY EQUIPMENT NOTED TO BE REMOVED AND NOT SALVAGED BY OWNER. CONTRACTOR SHALL PROPERLY DISPOSE OF ANY EQUIPMENT TO BE SALVAGED.

7. CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL TRADES PRIOR TO START OF WORK.

8. CONTRACTORS SHALL OBTAIN EXACT LOCATIONS AND SIZES OF ELEMENTS AND ADAPT WORK REQUIREMENTS TO EXISTING CONSTRUCTION OR BUILDING ELEMENTS RESULTING FROM DAMAGE CAUSED BY THE CONTRACTOR OR THEIR SUBCONTRACTORS. REPAIRS SHALL BE COMPLETED TO THE SATISFACTION OF THE BUILDING OWNER.

9. PRODUCT AND MATERIALS SPECIFICATIONS MUST BE CONFORM WITH SPECIFICATIONS "IN DOCUMENTS" OR TRADE OR INDUSTRY BEST STANDARD PRACTICES.

10. PROVIDE ALL REQUIRED ACCESSORIES TO EQUIPMENT AS REQUIRED OR OTHERWISE IMPLIED.

11. PROVIDE ALL REQUIRED ACCESSORIES TO EQUIPMENT AS REQUIRED OR OTHERWISE IMPLIED.

GENERAL PLUMBING NOTES

1. ALL WORK SHALL COMPLY TO THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE, NATIONALLY OR SOCIALLY ACCEPTABLE STANDARDS FOR THE INSTALLATION OF A WATER SYSTEM. CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL TRADES PRIOR TO START OF WORK.

2. WORK NOT SPECIFICALLY SHOWN IN DETAIL, REFERENCE OR OTHERWISE IMPLIED, SHALL BE PROVIDED IN ACCORDANCE WITH TRADE OR INDUSTRY BEST PRACTICE.

3. ALL EXISTING EQUIPMENT SHALL BE NEW AND SHALL CONFORM TO INDOOR QUALITY AND STANDARDS SPECIFIED.

4. ALL EQUIPMENT NOTES UNDER THESE SPECIFICATIONS SHALL BE SUBJECT TO REVISIONS IN ACCORDANCE WITH CONTRACTOR'S REQUIREMENTS. CONTRACTOR MAY REQUEST CHANGES TO THIS SPECIFICATION UPON APPROVAL OF ENQUIRY OR CHANGE.

5. CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL TRADES PRIOR TO START OF WORK.

6. CONTRACTORS SHALL OBTAIN EXACT LOCATIONS AND SIZES OF ELEMENTS AND ADAPT WORK REQUIREMENTS TO EXISTING CONSTRUCTION OR BUILDING ELEMENTS RESULTING FROM DAMAGE CAUSED BY THE CONTRACTOR OR THEIR SUBCONTRACTORS. REPAIRS SHALL BE COMPLETED TO THE SATISFACTION OF THE BUILDING OWNER.

7. PRODUCT AND MATERIALS SPECIFICATIONS MUST BE CONFORM WITH SPECIFICATIONS "IN DOCUMENTS" OR TRADE OR INDUSTRY BEST STANDARD PRACTICES.

8. PROVIDE ALL REQUIRED ACCESSORIES TO EQUIPMENT AS REQUIRED OR OTHERWISE IMPLIED.

9. PROVIDE ALL REQUIRED ACCESSORIES TO EQUIPMENT AS REQUIRED OR OTHERWISE IMPLIED.

PLUMBING LEGEND

- Domestic Cold Water
- Domestic Hot Water
- Waste
- Grease Trap
- Sanitary Drain
- Domestic Hot Water
- Sanitary Drain
- Domestic Cold Water
- Waste
- Grease Trap
- Sanitary Drain
- Domestic Hot Water
- Personal Logo

PLUMBING SYSTEMS SCHEDULE

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Notes:

1. Prior to rough-in, coordinate locations of plumbing fixtures with architectural, plumbing and all other trades prior to rough-in.
KEYED NOTES

1. REMOVE EXISTING SINK AND TEMPORARILY CAP PIPING. REFER TO NEW WORK PLANS FOR INFORMATION REGARDING TO SINK.

2. REMOVE EXISTING PLASTER TRAP UNDER SINK AND PROTECT FOR REUSE.
KEYED NOTES

1. REMOVE EXISTING THERMOSTAT AND RETAIN FOR REUSE.
   REFER TO NEW WORK PLANS AND ARCHITECTURAL.

2. WORK IN THIS AREA SHALL BE PERFORMED UNDER ALTERNATE
   #1 ONLY. REFER TO ARCHITECTURAL.
PROVIDE NEW SINK AND CONNECT TO EXISTING PIPING.
PROVIDE NEW SHUT OFF VALVES ON DCW AND DHW PIPING.
REINSTALL SALVAGED PLASTER TRAP UNDER SINK.

KEYED NOTES:  
1. PROVIDE NEW SINK AND CONNECT TO EXISTING PIPING.
2. PROVIDE NEW SHUT OFF VALVES ON DCW AND DHW PIPING.
3. REINSTALL SALVAGED PLASTER TRAP UNDER SINK.

BASEMENT PLUMBING PLAN

MEASURED AND DRAWN TO SCALE

MCKINLEY ELEMENTARY
STUDIO WELLS
500 S. MAIN ST.
DELTA, CO 81324

P1.0

1/8" = 1'-0"
KEYED NOTES:

1. INSTALL SALVAGED THERMOSTAT IN NEW LOCATION. EXTEND CABLING AS REQUIRED.
2. WORK IN THIS AREA SHALL BE PERFORMED UNDER ALTERNATE #1 ONLY. REFER TO ARCHITECTURAL.
ELECTRICAL DEMOLITION NOTES

1. **ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE LOCAL, STATE, AND NATIONAL MANDATES AS WELL AS ANY OTHER REQUIREMENTS IMPOSED BY THE OWNER WITHIN THE Scope of Work.**

2. **ALL CONTRACTORS AND THEIR SUBCONTRACTORS SHALL BE ACCESSIBLE AS REQUIRED BY LOCAL AHJ.**

3. **ALL GFCI-PROTECTED RECEPTACLES SHALL BE ACCESSIBLE AS REQUIRED BY LOCAL AHJ.**

4. **PUBLIC ADDRESS (PA) SYSTEM TO TERMINAL BLOCK WITH THE OWNER’S REPRESENTATIVE WHERE WORK IS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DISCONNECTING AND RECONNECTING OF ELECTRICAL LEGEND FOR THE START OF WORK AND REINSTALLATION OF WAPS AFTER WORK IS COMPLETED.**

5. **CONTRACTOR SHALL COORDINATE REMOVAL OF WIRELESS ACCESS POINTS (WAPS) WITH OWNER PRIOR TO ENSURING PROPER CALIBRATION, ADJUSTMENT, PROGRAMMING, AND OPERATION.**

6. **ALL EXPOSED CABLING SHALL BE PLENUM RATED.**

7. **NO LOADS SHALL BE PERMITTED TO BE HUNG FROM ROOF DECKING. ALL HANGERS SHALL BE HUNG DIRECTLY TO CEILINGS.**

8. **SURFACE MOUNT BOXES AT METAL AND MASONRY WALLS. PROVIDE NYLON FACEPLATE WITH 1-5/8” GROMMET AND RUBBER SUPPORTS TO PIPES, DUCTS, MECHANICAL EQUIPMENT, OR CONDUIT.**

9. **INSTALL DISCONNECT SWITCHES, CONTROLLERS, CONTROL STATIONS, AND CONTROL DEVICES TO COMPLETE PROJECT.**

10. **PROVIDE ALL REQUIRED ACCESSORIES AND EQUIPMENT FOR A COMPLETE OPERATIONAL SYSTEM AND MAINTAIN WARRANTY REQUIREMENTS. VERIFY ALL EQUIPMENT PROVIDED IS SUITABLE FOR INTENDED USE. PROVIDE ALL REQUIRED ACCESSORIES AND EQUIPMENT FOR A COMPLETE OPERATIONAL SYSTEM AND MAINTAIN WARRANTY REQUIREMENTS. VERIFY ALL EQUIPMENT PROVIDED IS SUITABLE FOR INTENDED USE.**

11. **CONTRACTOR SHALL PERFORM SITE VISIT(S) PRIOR TO BID TO ACCURATELY ASSESS REQUIRED WORK TO THEIR SUBCONTRACTORS. REPAIRS SHALL BE COMPLETED TO THE SATISFACTION OF THE BUILDING OWNER.**

12. **WORK NOT SPECIFICALLY SHOWN IN DETAIL, REFERENCED, OR OTHERWISE IMPLIED, SHALL BE PROVIDED IN ACCORDANCE WITH TRADE OR INDUSTRY BEST STANDARD PRACTICES TO PROVIDE A COMPLETE AND WORKMANLIKE RESULT.**

13. **ARCHITECTURAL DRAWINGS.**

14. **REFER TO PANEL SCHEDULES FOR CIRCUITING OF DEVICES SHOWN ON FLOOR PLANS.**

15. **ARCHITECTURAL DRAWINGS.**

16. **ELECTRICAL DEMOLITION NOTES**

17. **EXISTING STUD/GYPBOARD WALLS. ALL NEW WALLS SHALL HAVE RECESSED BACKBOXES AND CONDUIT.**

18. **PRODUCTS AND MATERIALS NOT TO SCALE AND PIECE OF EQUIPMENT.**

19. **ELECTRICAL LEGEND**
KEYED NOTES
1. REMOVE EXISTING DEVICE BOX AND SURFACE RACEWAY TO REMAIN. REFER TO NEW WORK PLANS FOR NEW DEVICE LOCATION.
2. REMOVE EXISTING UNDER CABINET LIGHT.
3. REMOVE EXISTING UNDER CABINET LIGHT BOX AND SURFACE MOUNTED OUTLET BOX, SURFACE MOUNTED BOX AND SURFACE RACEWAY ALONG THIS WALL AS INDICATED. EXISTING CIRCUIT TO REMAIN. REFER TO NEW WORK PLANS FOR NEW DEVICE LOCATION.
KEYED NOTES

1. REMOVE EXISTING SURFACE BOX AND SURFACE RACEWAY AS INDICATED. REFER TO NEW WORK PLANS.

2. REMOVE EXISTING UNDER CABINET LIGHT. REFER TO NEW WORK PLANS.

3. REMOVE EXISTING END PANEL TO SURFACE RACEWAY AS INDICATED. REFER TO NEW WORK PLANS.

4. REMOVE EXISTING DEVICES SERVING PRESENTATION WALL. REMOVE SURFACE RACEWAY TO JUNCTION HIGH ON WALL. REFER TO NEW WORK PLANS.

5. REMOVE EXISTING UNDER CABINET LIGHTS. REFER TO NEW WORK PLANS.

6. REMOVE EXISTING END PANEL TO SURFACE RACEWAY AS INDICATED. REFER TO NEW WORK PLANS.

7. REMOVE EXISTING DEVICES SERVING PRESENTATION WALL. REMOVE SURFACE RACEWAY TO JUNCTION HIGH ON WALL. REFER TO NEW WORK PLANS.

8. REMOVE EXISTING UNDER CABINET LIGHT. REFER TO NEW WORK PLANS.

9. REMOVE EXISTING END PANEL TO SURFACE RACEWAY AS INDICATED. REFER TO NEW WORK PLANS.

10. REMOVE EXISTING DEVICES SERVING PRESENTATION WALL. REMOVE SURFACE RACEWAY TO JUNCTION HIGH ON WALL. REFER TO NEW WORK PLANS.

11. REMOVE EXISTING UNDER CABINET LIGHTS. REFER TO NEW WORK PLANS.

12. REMOVE EXISTING END PANEL TO SURFACE RACEWAY AS INDICATED. REFER TO NEW WORK PLANS.

13. REMOVE EXISTING DEVICES SERVING PRESENTATION WALL. REMOVE SURFACE RACEWAY TO JUNCTION HIGH ON WALL. REFER TO NEW WORK PLANS.
KEYED NOTES

1. INSTALL NEW RECEPTACLE IN EXISTING BOX.
2. INSTALL NEW RECEPTACLE ABOVE COUNTER AND ROUTE SURFACE RACEWAY AS INDICATED. CONNECT TO EXISTING RECEPTACLE CIRCUIT. COORDINATE WITH ARCHITECTURAL ELEVATIONS.
3. PROVIDE NEW POWER, DATA, AND A/V DEVICES IN NEW PRESENTATION BOARD LOCATIONS. COORDINATE WITH ARCHITECTURAL ELEVATIONS. REFER TO DETAIL A/E0.0.
REINSTALL SALVAGED WAP IN NEW LOCATION. EXTEND ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS.
INSTALL NEW RECEPTACLE IN NEW LOCATION AND CONNECT TO EXISTING RECEPTACLE CIRCUIT. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS.
INSTALL NEW RECEPTACLE ABOVE COUNTER AND ROUTE TO EXISTING RECEPTACLE CIRCUIT. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS.
INSTALL NEW RECEPTACLE ABOVE COUNTER AND CONNECT TO EXISTING RECEPTACLE CIRCUIT. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS.
INSTALL NEW RECEPTACLE IN NEW LOCATION.
INSTALL SALVAGED FIRE ALARM DEVICE IN NEW LOCATION.
WORK IN THIS AREA SHALL BE PERFORMED UNDER ALTERNATE ELEVATIONS.
REINSTALL SALVAGED WAP IN NEW LOCATION.