

Project Manual



Coquina Beach

Beach Side Restroom Renovation

for

manatee county government
bradenton, florida

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commission no.: 0920829

100% Construction Documents

Divisions 01 thru 26

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**COQUINA BEACH
BEACH SIDE RESTROOM RENOVATION**

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PROCUREMENT AND CONTRACTING
REQUIREMENTS GROUP



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SECTION 00 73 00
SUPPLEMENTARY CONDITIONS

1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

Add the following definitions or sentences to the General Conditions Section

Engineer – Engineer or Architect of record.

Engineering – Professional work done by either a registered Engineer or an Architect.

Work – (Add the following sentence to the end of the Subparagraph) "...The Contractor acknowledges and agrees that the Contract Documents are sufficient to provide for the completion of the Work and include Work, whether or not shown or described, which reasonably may be inferred to be required or useful for the completion of the Work in accordance with applicable laws, codes, and customary standards of the construction industry."

Supplier –(Add the following sentence to the end of the Subparagraph) "... The term "supplier" as used herein, includes a firm or organization furnishing or delivering products directly to the jobsite, and because of such direct delivery, could be construed under the lien laws of the State in which the work is being performed as having lien rights against the funds due the Contractor. Suppliers of material and equipment, delivering to Contractor or Subcontractor on an open account basis and not having lien rights on the Work, will not be considered suppliers within the meaning of the Contract Documents.

1.2 MISCELLANEOUS DEFINITIONS

- A. The term "product" as use herein includes materials, systems, and equipment.
- B. A bidder selected to enter into a Contract with the Owner for Work included under the bidder's proposal is termed an "Awardee," until such time as he is awarded a Contract and becomes the Contractor.
- C. Where "complete" is used, it shall mean "complete with connections, supports, attachments and incidental items necessary for a finished and properly operating assembly or installation."
- D. The term "furnish" - to supply (only) to another party for their use of installation, including cost of delivery and unloading at the jobsite.
- E. The term "install" - to distribute, uncrate, assemble, and fix into the intended final positions, the installer to provide all miscellaneous hardware and supplies required to anchor and support securely, clean-up, and dispose of rubbish.
- F. The term "connect" - to bring service(s) to point of installation and make final connections to the service(s) to the installed equipment, and to provide miscellaneous auxiliary appurtenances necessary to make operable for its intended use.



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- G. The term "provide" - to furnish, install, and connect complete.
- H. The term "or equal" means an equal approved in writing by the Architect at least 10 days prior to bid receipt, and listed in an Addendum.

1.3 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

The intent of Contract Documents is to include all items necessary for the proper execution and completion of the Work by the contractor. The contract documents are complementary, and what is required by one shall be as binding as if required by all. If there should be a conflict between two or more of the Contract Documents, the following order of interpretation shall apply:

- A. The terms and conditions as set forth in the Bidding Requirements, including legal advertisement thereof, shall have full force and effect until such time as the Standard Form of Agreement between Owner and Contractor is executed between the Owner and the Awardee.
- B. Where there is a conflict between the Bidding Requirements and the Contract Documents, the Contract Documents shall govern.
- C. Where there is conflict between the requirements of the General Conditions of the Contract and the Supplementary Conditions, the requirements of the Supplementary Conditions shall govern, except where the requirements set forth in the Supplementary Conditions are contrary to law, in which case the legal requirements shall govern. The General Conditions of the Contract shall take precedence over other Contract Documents.
- D. Where there is conflict between the Drawings and Specifications and conflict within the Drawings or within the Specifications, the conflict, where applicable, shall be resolved by providing better quality or greater quantity as indicated in the Contract Documents.
- E. It is the intent of the Contract Documents to accomplish a complete and first-grade installation in which there shall be installed new products of the latest and best design and manufacturer, and workmanship shall be thoroughly first class, executed by competent and experienced workmen.
- F. Details of preparation, construction, installation, and finishing encompassed by the Contract Documents shall conform to the best practices of the respective trades, and that workmanship, construction methods, shall be of first class quality so as to accomplish a neat and first class finished job.
- G. Where specific recognized standards are mentioned in the Specifications, it shall be interpreted that such requirements shall be complied with.
- H. The intent of the Contract Documents is to include all labor, equipment, and materials necessary for the proper and timely execution and completion of the Work, even though such labor, equipment, materials are not expressly included in the Contract Documents.
- I. The Contract Documents are complimentary, and what is required by one will be as binding as if required by all.



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- J. The Contractor will be required to perform all parts of the Work, regardless of whether the parts of the Work are described in Sections of the Contract Documents applicable to other trades.

2 - OWNER

2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

- A. Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing structures including those charges and costs related to zoning changes, environmental impact statements, and similar requirements related to use of the site."
- B. The Owner shall not be responsible for furnishing surveys (unless required for the execution of the Work and requested by the Contractor in writing) or other information as to the physical characteristics of, legal limitations of, or utility locations for the Project site, but as necessary for the Work, shall furnish or cause to be furnished to the Contractor a legal description of the project site, which shall not constitute one of the Contract Documents. The Contractor shall confirm the location of each utility; shall relocate or dispose of each on-site utility and shall cap each utility as required by the Work or the Specifications. The Contractor shall not be entitled to additional compensation resulting from its failure to confirm the location of the site utilities or existing structures prior to the opening of its bid.

3 - CONTRACTOR

3.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

- A. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.
- B. Where there is a conflict in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated on the more expensive way of doing the Work and the larger quantity required. Only changes or interpretations covered by Addenda or written from the Architect will be permitted during construction of the Work. The Contractor shall perform no portion of the Work at any time without Contract Documents or where required, received Shop Drawings, Product Data, or Samples for such portion of the Work.
- C. Because the Contract Documents are complimentary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to the portion of the Work, as well as the information furnished by the Owner as it applies to the scope of work. Contractor shall be responsible for field measurements and shall take notice of all site conditions effecting the project and project scope. Contractor shall inform the Owner and Architect of such observations and their impact on the project in its entirety. The Contractor shall promptly inform the Architect of any errors, omissions,



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or inconsistencies in the Contract Documents discovered through review, request for information, change orders, or any other means in a format that Architect defines with a clear description of the item and its impact on the project scope. Before ordering material or performing any Work, the contractor shall verify all measurements at the Project site. Any differences between dimensions on the Drawings and actual measurements shall be brought to the Architect's attention for consideration before the Work proceeds. Where actual measurements require more material and work than the Drawings call for, such material and Work shall be supplied at the cost of the Contractor. No extra compensation will be allowed because of difference between actual measurements and dimensions indicated on the Drawings. The Contractor shall assume full responsibility for accuracy of measurements obtained at the work site.

- D. If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information the Contractor shall make Claims per specifications and inform the Architect in writing. If the Contractor fails to perform this obligation in a timely manner adequate for a reasonable response and adjustments by the Architect/Owner, the Contractor shall pay for such costs of damages to the Owner.
- E. Mechanical and Electrical Drawings are diagrammatic only. Actual work involved shall be installed from received Shop Drawings with all measurements obtained at the Project Site by the Contractor.
- F. Dimensions which are lacking from the Drawings shall be obtained from the Architect or field verified. In no case will the Contractor assume that the Drawings are scaled.
- G. General contractor is responsible for securing all permits and for permit fees. Contractor is responsible for all permits, fees, licenses, and inspections by government agencies necessary for proper execution and completeness of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded. Certain permits have been obtained by the Owner, it is the responsibility of the Contractor to coordinate with the Owner and determine the outstanding permit requirements and balance of fees associated with the permits.

3.2 WARRANTY AND LABOR AND MATERIALS

- A. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of Work.
- B. The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper conditions to receive subsequent Work. Architect shall reserve a right to inspection of construction to assure compliance to the Contract Documents. Contractor shall be responsible for Work compliance to the Contractor Documents.
- C. The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free of defects. In



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addition to any other warranties, guarantees, or obligations set forth in the Contract Documents or applicable as a matter of law and not in limitation of the terms of the Contract Documents, the Contractor warrants and guarantees that:

1. The Owner will have good title to the Work and materials and equipment incorporated into the Work will be new.
 2. The Work and materials and equipment incorporated into the Work will be free from defects, including defects in the workmanship or materials.
 3. The Work and equipment incorporated into the Work will be fit for the purpose for which they are intended.
 4. The Work and materials and equipment incorporated into the Work will be merchantable.
 5. The Work and materials and equipment incorporated into the Work will conform in all respects to the Contract Documents.
- D. The Contractor shall, upon completion of the Work, assign to the Owner all warranties obtained or obtainable by, the Contractor from manufacturers and suppliers of equipment and materials incorporated into the Work by written instrument of assignment in a form acceptable to the Owner.
- E. For a period of three years from the date of final completion and acceptance of the Work by the Owner, as evidenced by the date of the Substantial Completion, the Contractor warrants to the Owner all movable windows, apparatus, machinery, mechanical and electrical equipment. For the same period, the Contractor warrants to Owner to make good, at his own expense, any defects, shrinkages, warpages or other faults in Work required under this Contract arising out of defective materials or workmanship, ordinary wear and tear excepted.
- F. As part of the above warranty, it is expressly understood and agreed that the Contractor warrants that the Contractor's portion of the Work shall be waterproof and weatherproof in every respect for a period of three (3) years from the Date of Substantial Completion.
- G. The Contractor warrants and represents to the Owner that the Drawings and Specifications for the Work are suitable and adapted for said Work, and guarantees the sufficiency of said Drawings and Specifications for their intended purpose and agrees that it will perform said construction work and complete same to the entire satisfaction of the Owner and Architect.
- H. In addition to all of Contractor's warranties and obligations to correct defective Work provided by law or as set forth in any of the Contract Documents, the Contractor agrees, upon notice from Owner or Architect, immediately to repair, restore, correct and cure, at Contractor's expense, all defects and omissions in workmanship and materials and all failures to comply with the Contract Documents which appear within three (3) years from the Date of Substantial Completion. Contractor shall pay for, and if requested, correct, repair, restore and cure any damage or injury, whenever the same shall occur or appear, resulting from any defects, omissions or failure in workmanship and materials, and indemnify, hold harmless, and defend Owner against any and all claims, losses, costs, damages and expenses, including attorney's fees, suffered by Owner as a result of such damage or injury, whenever such damage or injury shall occur or appear.
- I. The foregoing guarantees and warranties shall not shorten any longer warranty or liability period provided for by law or in the plans, drawings or specifications or otherwise received



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from Contractor or any subcontractor, material supplier or manufacturer of Contractor nor supersede the terms of any liability for defective Work, but shall be in addition thereto, and shall be in addition to all manufacturer's and factory warranties.

- J. All guarantees or warranties upon any Work, labor, materials, or equipment by any subcontractor or material supplier of Contractor shall be deemed made by Contractor to Owner. All guarantees and warranties shall survive Owner's final acceptance of the Project. Neither the acceptance of any of the Work by Owner, in whole or in part, nor any payment, either partial or final, by Owner to Contractor, shall constitute a waiver by Owner of any claims against Contractor for defects in the Work, whether latent or apparent, and no such payment or acceptance of the Work by Owner shall release or discharge Contractor or Contractor's surety from any such claims for breach of such warranties.
- K. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the project site during the performance of the Work. The superintendent shall represent the Contractor and communication given by the superintendent shall be as binding as if they were given by the Contractor. The Superintendent shall be satisfactory to the Architect and the Owner, and the Architect and Owner shall have the right to require the Contractor to remove a Superintendent and replace with a Superintendent who is satisfactory to the Architect and Owner. The Contractor shall not replace the Superintendent without the consent of the Architect and Owner, except with another Superintendent who is satisfactory to the Architect and Owner.
- L. The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to perform the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributed to corrections.
- M. All observed or uncovered conditions on site that differ than those anticipated by the Contract Documents shall be reported to the Architect for investigation and direction. The Contractor shall inform the Architect of such conditions no later than 21 days after the first observance of such conditions.
- N. The Contractor shall submit a schedule of Work to the Owner and Architect promptly after the contract award.
- O. The Contractor shall perform Work so as not to interfere with the Owner's ongoing activities and so as not to create any hazards to the Owner's employees or members of the public using the Owner's property.
- P. Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the Owner to do the work from the appropriate governmental agency or agencies. No work shall commence until all applicable permits have been obtained and copies delivered to the Engineer. The costs for obtaining all permits shall be borne by the Contractor.
- Q. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the Engineer and Owner a Hurricane Preparedness Plan. The plan should outline the



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necessary measures which the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane warning.

- R. In the event of inclement weather, or whenever Engineer shall direct, Contractor shall insure that he and his Subcontractors shall carefully protect work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any portion of work or materials is damaged due to the failure on the part of the Contractor or Subcontractors to protect the work, such work and materials shall be removed and replaced at the expense of the Contractor.
- S. The Contractor shall do all groundwater pumping necessary to prevent flotation of any part of the work during construction operations with his own equipment. The Contractor shall pump out water and wastewater which may seep or leak into the excavations for the duration of the Contract and with his own equipment. He shall dispose of this water in an appropriate manner.
- T. The Contractor shall not create a public nuisance including but not limited to encroachment on adjacent lands, flooding of adjacent lands, excessive noise or dust. Sound levels must meet Manatee County Ordinance #87-34, (which amends Ordinance 81-3, The Manatee County Noise Control Ordinance) or latest edition of the ordinances. Sound levels in excess of such ordinance are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the Engineer or County f or excessive noise shall not relieve the Contractor of the other portions of this specification including, but not limited to contract time and contract price. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

3.3 PROTECTION OF PROPERTY AND PERSONS

- A. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work under this Contract. The Contractor shall promptly remedy any damages and loss caused to the property or persons.
- B. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
 - .1 employees on the Work and other persons who may be affected.
 - .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
 - .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of Construction.



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4 - ARCHITECT

4.1 GENERAL

- A. The term "Architect," "Architect/Engineer," or "Engineer" as used herein means the Architect or his authorized representative.
- B. To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work or any site safety responsibilities which are the responsibility of the Contractor. Contractor shall further indemnify the above agents from any unforeseen damages to the Work or materials due to accidental causes or natural causes. The Contractor shall also indemnify the above stated agents from all royalty and patent rights, all associated fees for royalty and patents shall be the responsibility of the Contractor.
- C. The Architect shall provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during the construction until the date the Architect issues the final Certificate For Payment. The Architect shall have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents. The Architect shall not be held responsible for construction means, methods, technique, sequences or procedures of any safety precautions.
- D. Based on the Architect's evaluations of the Contractor's Application for Payment, the Architect shall review and certify the amounts due to the Contractor and will issue Certificates for Payment in such amounts. See Submittals section in the specifications for more info on Certificates of Payment procedures.
- E. Architect has authority to reject Work that does not comply with the Contract Documents. Architect shall have the authority to require inspections or testing of the Work whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor or any other subcontractors, suppliers, installers or their agents or employees, or any entities performing portions of Work.
- F. Interpretations and decisions of the Architect will be consistent with the intent of the Construction Documents and will be made in writing or drawing format. The Architect will endeavor to secure faithful performance by both the Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

5 - SUBCONTRACTORS

5.1 AWARD OF SUBCONTRACTORS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

- A. The Contractor shall furnish to the Architect in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work, in accordance with the requirements under Specification Section 01300, Submittals, in a form acceptable to the Architect, for review by the Owner and the Architect.



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- B. The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objections to such substitution. The Owner may require the Contractor to change a Subcontractor or Sub-subcontractor previously approved, and, if at such time the Contractor is not in default under this Agreement, the Contract sum shall be increased or decreased by the difference in the cost resulting from the change.
- C. Any part of the Work performed for the Contractor by a Subcontractor or its Sub-subcontractor shall be pursuant to a written Subcontract between the Contractor and such Subcontractor (or the Subcontractor and its Sub-subcontractor at any tier). Architect will assume no responsibility for reviewing, monitoring, or verifying activities or relationships involving a Subcontractor or its Sub-subcontractor.

5.2 DELAYS AND EXTENSION OF TIME

- A. If the Contractor is delayed at any time in its progress of the Work by one of the delays for which an extension of time is permitted and gives the Architect written notice specifically describing the delay within 48 hours of its commencement, the date for the Substantial Completion of the Work will be extended by Change Order for such reasonable time as the Architect may determine. The failure to give such notice will constitute an irrevocable waiver of the contractor's right to seek an extension of the time for completion will be delays caused by the i) Architect, or the Owner, ii) physical damage to the Project over which the Contractor has no control, iii) labor disputes beyond the control of the Contractor, and iv) unusually severe weather conditions not reasonably anticipated (temperature, rain, or other precipitation within a range of twenty percent (20%) of normal amounts for the time of the year covered by the Agreement shall not be considered unusually severe weather conditions). Extensions of time will only be granted pursuant to the procedures for Change Orders set forth in the General Conditions. The Contractor agrees not to make claims for compensation for delays or acceleration in the performance of the Work resulting from acts or failure to act by the Owner, the Architect, or the employees, agents, or representatives of the Owner, or the Architect and agrees that such claim shall be fully compensated by an extension of time to complete the Work, regardless of when granted.
- B. If in the opinion of the Architect the Work is behind where it is supposed to be in the Project Time Schedule or it is likely that the Work will not be substantially complete by the applicable date for Substantial Completion, the Contractor upon written notice from the Architect and without additional cost or compensation will increase its work force and, if requested by the Architect, work such overtime to make up for the delay. Should the Contractor fail to increase its work force, work overtime, or proceed to make up for the delay to the satisfaction of the Architect or the Owner, the Architect or the Owner, in addition to other remedies under this Agreement and other Contract Documents, will have the right to cause other Contractors to work overtime and to take whatever other action is deemed necessary to avoid delay in the Substantial Completion of the Work and of the Project, and the cost and expense of such overtime and other action will be borne by the Contractor and may be set off against sums due the Contractor.



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6 - UNCOVERING AND CORRECTION OF WORK

6.1 CORRECTION OF WORK

- A. Within 48 hours after written notices from the Architect, or the Owner (except such period shall be 7 days when notice is given after final payment) that the work does not conform to the Contract Documents, or immediately upon oral notice, if the nonconformance constitutes a threat to the safety of persons or property, the Contractor, without waiting for the resolution of disputes that may exist i) shall commence to correct such nonconformance, ii) shall thereafter use its best efforts to where an extension of time is granted in writing by the Owner, shall complete necessary corrections so that the nonconformance is eliminated to the satisfaction of the Architect, and the Owner within 7 days of such notice. The Contractor shall bear all costs of correcting the nonconformance, including additional testing and inspections and additional service fees of the Architect. The notice provided for in this Subparagraph may be given at any time. It is the intent that the obligations under this Subparagraph shall continue to apply after final completion and final payment.
- B. If the Contractor fails to correct nonconforming Work the Owner may correct it in accordance with Contract. If the Subcontractor does not proceed with correction of such nonconforming Work as provided in the Contract, the Owner may remove it and store the salvageable materials or equipment at the Contractor's expense.

6.2 ACCEPTANCE OF NONCONFORMING WORK

- A. The acceptance of nonconforming Work by the Owner shall be by written Change Order, signed by the Owner's authorized representative. No person has authority to accept nonconforming work except pursuant to such written Change Order.

7 – CONTRACT CLOSEOUT

7.1 SUBSTANTIAL COMPLETION

- A. The Contractor shall submit the following items when the Contractor considers the work to be substantially complete:
1. A written notice that the work, or designated portion thereof, is substantially complete.
 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the Architect and Owner shall make an inspection to determine the status of completion.
- C. Project record documents and operations and maintenance manuals must be submitted before the project shall be considered substantially complete.
- D. If the Architect determines that the work is not substantially complete:



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1. The Architect shall notify the Contractor in writing, stating the reasons.
 2. The Contractor shall remedy the deficiencies in the work and send a second written notice of substantial completion to the Architect.
 3. The Architect shall re-inspect the work.
- E. When the Architect finds that the work is substantially complete:
1. He shall prepare and deliver to the Owner a tentative Certificate of Substantial Completion with a tentative list of the items to be completed or corrected before final payment.
 2. The Architect shall consider any objections made by the Owner as provided in Conditions of the Contract. When the Architect considers the work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

7.2 FINAL INSPECTION

- A. When the Contractor considered the work to be complete, he shall submit written certification stating that:
1. The Contract Documents have been reviewed.
 2. The work has been inspected for compliance with Contract Documents.
 3. The work has been completed in accordance with Contract Documents.
 4. The equipment and systems have been tested in the presence of the Owner's representative and are operational.
 5. The work is completed and ready for final inspection.
- B. The Architect shall make an inspection to verify the status of completion after receipt of such certification.
- C. If the Architect determines that the work is incomplete or defective:
1. The Architect shall promptly notify the Contractor in writing, listing the incomplete or defective work.
 2. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Architect that the work is complete.
 3. The Architect shall re-inspect the work.
- D. Upon finding the work to be acceptable under the Contract Documents, the Engineer shall request the Contractor to make closeout submittals.



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- E. For each additional inspection beyond a total of three (3) inspections for substantial and final completion due to the incompleteness of the work, the Contractor shall reimburse the Owner for the Architect's fees.

7.3 CONTRACTOR'S CLOSOUT SUBMITTALS TO ARCHITECT

- A. Project Record Documents (prior to substantial completion).
- B. Operation and maintenance manuals (prior to substantial completion).
- C. Warranties and Bonds.
- D. Evidence of Payment and Release of Liens: In accordance with requirements of General and Supplementary Conditions.
- E. Certificate of Insurance for Products and Completed Operations.
- F. Final Reconciliation, Warranty Period Declaration, and Contractor's Affidavit.

7.4 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Architect.
- B. Statement shall reflect all adjustments to the Contract Sum.
- C. Project Management shall prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.
- D. Final application for payment shall be made per contract document procedures.

END OF SECTION 00 73 00



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SECTION 00 80 00
MEASUREMENT, PAYMENT AND COMPLETION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.
- C. The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The Owner/Engineer docs not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities Final payment will be made only for satisfactorily completed quantity of each item.
- D. No payment will be made for work constructed outside the authorized limits of work.
- E. Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.
- F. Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

1.3 UNIT PRICE

- A. Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required tor satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.



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- F. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the Owner until as-built (record) drawings have been submitted and approved by the Engineer.
1. Shop Drawings, Working Drawings.
 2. Clearing, grubbing and grading except as hereinafter specified.
 3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
 4. Dewatering and disposal of surplus water.
 5. Structural fill, backfill, and grading.
 6. Replacement of unpaved roadways, and shrubbery plots.
 7. Cleanup and miscellaneous work.
 8. Foundation and borrow materials, except as hereinafter specified.
 9. Testing and placing system in operation.
 10. Any material and equipment required to be installed and utilized for the tests.
 11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
 12. Maintaining the existing quality of service during construction.
 13. Maintaining or detouring of traffic.
 14. Appurtenant work as required for a complete and operable system.
 15. Seeding and hydromulching.
 16. As-built Record Drawings.

1.4 BID ITEM DESCRIPTIONS

- A. Bid Items are described in a greater detail below.

Bid Item No. 1: MOBILIZATION/DEMOBILIZATION: Payment for all work under MOBILIZATION/DEMOBILIZATION shall be paid for at a lump sum price. The contract lump sum price paid for MOBILIZATION/DEMOBILIZATION shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work in this category. MOBILIZATION shall include but not be limited to: obtaining bonds, insurance and financing, movement of equipment, materials and personnel, supervision, field office, certificates, permits, submittals, utilities, site maintenance, cleanup, dust control and all other work incidental to the contract per drawings and specifications. The cost for MOBILIZATION/DEMOBILIZATION shall not exceed five (5) percent of the total bid for this project without documented justification and approval by the owner.

Bid Item No. 2: TEMPORARY EROSION CONTROL: Payment for all work under TEMPORARY EROSION CONTROL shall be paid for at a lump sum price. The contract lump sum price paid for TEMPORARY EROSION CONTROL shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals to install, maintain, and remove all required TEMPORARY EROSION CONTROL, including drainage inlet protection, fiber rolls, erosion control fencing, tree protection, construction entrances, and any other temporary erosion control measures as may be required by the Project permits or permitting agencies, as shown on the plans, as specified herein, and as directed by the Architect.



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Bid Item No. 3: DEMOLITION Payment for all work under DEMOLITION shall be paid for at a lump sum price. The contract price paid for DEMOLITION shall include all work and materials per plans and specifications. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in DEMOLITION. This sum shall be inclusive of entire project scope per plans and specifications for materials, installation/labor, storage, maintenance, testing and all other aspects of work associated with DEMOLITION. Scope shall include but not be limited to: all demolition, material removal, temporary shoring and temporary structure. See drawings and specifications for complete scope of work.

Bid Item No. 4: SITE WORK - COMPLETE Payment for all work under SITE WORK - COMPLETE shall be paid for at a lump sum price. The contract price paid for SITE WORK - COMPLETE shall include all work and materials per plans and specifications. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in SITE WORK - COMPLETE. This sum shall be inclusive of entire project scope per plans and specifications for materials, installation/labor, storage, maintenance, testing and all other aspects of work associated with SITE WORK - COMPLETE. Scope shall include but not be limited to: excavation, fences, gates, and miscellaneous concrete. See drawings and specifications for complete scope of work.

Bid Item No. 5: LANDSCAPE AND IRRIGATION Payment for all work under LANDSCAPE AND IRRIGATION shall be paid for at a lump sum price. The contract price paid for LANDSCAPE AND IRRIGATION shall include all work and materials per plans and specifications. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in LANDSCAPE AND IRRIGATION. This sum shall be inclusive of entire project scope per plans and specifications for materials, installation/labor, storage, maintenance, testing and all other aspects of work associated with LANDSCAPE AND IRRIGATION. See drawings and specifications for complete scope of work.

Bid Item No. 6: BUILDING - COMPLETE Payment for all work under BUILDING - COMPLETE shall be paid for at a lump sum price. The contract price paid for BUILDING - COMPLETE shall include all work and materials per plans and specifications. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in BUILDING - COMPLETE. This sum shall be inclusive of entire project scope per plans and specifications for material removal, labor, clean up, and all other aspects of work associated with BUILDING - COMPLETE. Scope shall include but not be limited to: all building systems and components as described in drawings and specifications, exterior envelope, roof, all interior components, painting, finishes, casework, and all other scope not covered by other bid sections. See drawings and specifications for complete scope of work.

Bid Item No. 7: DISCRETIONARY WORK Payment for all work under DISCRETIONARY WORK shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the Plans and Specifications.



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Bid Item No. 8: HAZARDOUS MATERIAL REMOVAL HAZARDOUS MATERIAL REMOVAL price shall be provided to the owner and shall not be part of the total bid price. This bid item is reserved to be used if any hazardous materials are discovered at the site and need to be mitigated in order to complete the Work per drawings and specifications. Contractor shall price 1 cubic yard or hazardous material removal and replacement of that material with a healthy material as needed to complete the Work as drawn and specified. Contractor shall price all work associated with removal and replacement of such material including but not limited to: all associated labor, equipment, transportation, healthy material replacement, and any associated price change in any work affected by this bid item as it pertains to completion of Work as drawn and specified. Contractor shall not add this price to the bid amount and shall use this unit price (CY) amount only if hazardous materials are discovered at the site. No work under this bid item shall be furnished without the written approval and agreement from the Owner. Contractor shall use this price for any (small or large) amount of work to be done under this bid item.

1.5 APPLICATIONS FOR PAYMENT

- A. Applications for payment shall be made at approximately 30 day intervals in accordance with the dates established in the Standard Form of Agreement Between Owner and Contractor. At least 15 days before each progress payments falls due, the Contractor shall submit to the Architect, in quintuplet, an itemized Application for Payment, supported by such data sustaining the Contractor's right to payment as the Owner, or the Architect may require. The form of Application for Payment shall be AIA Document G702 - Application and Certification for Payment, supported by AIA Document G703 - Continuation Sheet. No other forms of Application for Payment will be acceptable. Continuation Sheet G703 shall be prepared the same as in the Schedule of Values submitted by the Contractor. Contractor's payment will be made within forty five (45) days after the Contractor's payment application is approved by the Architect. The Contractor will only be paid as described in the Owner-Contractor Agreement.
- B. Contractor shall submit with each monthly Application for Payment, 1) an affidavit that payrolls, bills for materials and equipment, and other indeptness connected with the Work for which the previous Application, was submitted and the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, and 2) release or waivers of liens arising out of the Contract from each Subcontractor, materialmen, supplier, and laborer of the Contractor in the form of Partial Lien Waiver provided with the Contract Documents or such other form as may be approved by the Architect and Owner, and 3) County of Manatee Claims Form available from the city/county Clerk's office.
- C. For Schedule of Values requirements please see section 01 33 00.
- D. Unless otherwise indicated in Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site. If previously agreed upon by the Owner, payments may similarly be made for materials and equipment stored off the site at a location previously agreed upon in writing. Contractor shall comply with



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all conditions of off site storage agreement as indicated by the Owner prior to proceeding with arrangements for such conditions. Payment to Contractor for materials stored off site is discouraged. Where circumstances indicate that the Owner's best interest is served by off-site storage, the Contractor shall make written request to the Architect for approval to include such material costs in his next progress payment. The Contractor's request shall include the following information:

1. A list of the fabricated materials consigned to the project (which shall be clearly identified), giving the place of storage, together with copies of invoices and reasons why materials cannot be delivered to the site.
 2. Certification that items have been tagged for delivery to the project and that they will not be used for another purpose.
 3. A letter from the Bonding Company indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party or their responsibility to complete the facility.
 4. Evidence of adequate insurance covering the material in storage, which shall name the Owner as additionally insured.
 5. Costs incurred by the Architect to inspect material in off-site storage shall be paid by the Contractor.
 6. Subsequent pay requests shall itemize the materials and their cost which were approved on previous pay requests and remain in off-site storage
- E. The Contractor warrants the title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment and is free and clear of all liens and encumbrances. The Contractor will indemnify the Owner and the Owner's property from any liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors or their Sub-subcontractors, regardless of tier, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, equipment, services or supplies relating to the Work, and from all cost and expenses, including attorneys' and consultants' fees incurred by the Owner in evaluating or defending against such liens, claims, security interests or encumbrances. Partial payments to the Contractor for labor performed under either a unit or lump sum price Contract shall be made at the rate of 90 percent (90%) of the Contract Sum.
- F. When the payment is made on account of materials or equipment not yet incorporated into the Project, such materials and equipment will become the property of the Owner; provided that if such materials or equipment are stolen, destroyed, or damaged before being fully incorporated into the Project, the Contractor will be required to replace them at its own expense, if not covered by builder's risk policy.
- G. At the time the Work is seventy five percent (75%) complete, the Contractor may request that no further retainage be withheld from future progress payments. If such request is approved by the Owner, and if the manner of completion and the Work and its progress are and remain satisfactory to the Architect, and in the absence of good and sufficient reasons, the Architect will, on presentation by the Contractor of Consent of Surety (use AIA G707A), authorize any remaining partial payments to be paid in full."



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- H. Partial or full payment to the Contractor(s) for material, equipment, or work in place shall not start the warranty period, refer to Division 1, Specification Section 01600.

1.6 CERTIFICATES FOR PAYMENT

- A. The Architect will, within fifteen days, after receipt of the Contractor's Application for Payment, either issue to the owner a Certificate for Payment, with a copy to the Contractor, for such amounts as the Architect deems is properly due, or notify the Contractor and the Owner of the Architect's reason for withholding certification in whole or in part as provided in paragraph .1, section 3 of ARTICLE 6.
- B. The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment that to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated on the Application for Payment. The issuance of a Certificate for Payment will not be a representation that the Architect has (a) made exhaustive or continuous on site inspections to check the quality or quantity of the Work, (b) reviewed construction means, methods, techniques, sequences or procedures, (c) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (d) made examination to ascertain how or for what purpose the Contractor has used the money previously paid on account of the Contract Sum.

1.7 DECISIONS TO WITHHOLD CERTIFICATION

- A. The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in Architect's opinion the representation to the Owner required by the above section can not be made. If an Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as indicated above. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in specifications and because of:
 - 1. The Contractor is in default of the performance of any of its obligations under the Contract Documents, including, but not limited to: failure to provide sufficient skilled workers; work, including equipment or materials, which is defective or otherwise does not conform to the Contract Documents; failure to conform to the Project Time Schedule; or failure to follow the directions of or instructions from the Architect or Owner.
 - 2. The Contractor is in default of the performance of any of its obligations under



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another Contract, which it has with the Owner.

3. The filing of the third party claims or reasonable evidence that third party claims have been or will be filed.
 4. The Work has not proceeded to the extent set forth in the Application for Payment.
 5. Representations made by the Contractor are untrue.
 6. The failure of the Contractor to make payments to its Subcontractors, materialmen, or laborers.
 7. Damage to the Owner's property or the property of another Contractor or person.
 8. The determination by the Architect that there is a substantial possibility that the Work cannot be completed for the unpaid balance of the Contract Sum.
 9. Liens filed or reasonable evidence indicating the probable filing of such liens with respect to the Project.
- B. When the above reasons for withholding certifications are removed, certification will be made for the amounts previously withheld. If the Owner makes payments by joint check, the Owner shall notify the Architect in order to reflect such payments on the next Certification for Payment.
- C. Contractor's application for a payment shall reflect an equal percentage amount (within 2-3 percent) for labor and materials for Work completed. The Architect may adjust applications where labor exceeds materials or where materials exceed labor quantities in the Work completed columns.
- D. If the Contractor disputes a determination by the Architect with regard to Certificate of Payment, and during any related dispute resolution, litigation, or other proceeding, the Contractor nevertheless shall continue to execute the Work as described in the Contract Documents.

1.8 PROGRESS PAYMENTS

- A. After issuance of Certificate for Payment, Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall notify the Architect.
- B. The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall require each Subcontractor to make payments to Sub-subcontractors in a similar manner.
- C. The Owner has the right to request written evidence that the Contractor has paid all Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor. If the Contractor does not provide adequate evidence within seven days,



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Owner shall have the right to contact the Subcontractors and obtain the information required. Neither an Owner or Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law. Payments to material and equipment suppliers shall follow similar rules as stated above.

- D. A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work.

1.9 FAILURE OF PAYMENT

- A. If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within fourteen days after receipt, or if the Owner does not pay the contractor within fourteen days after the date established in the Contract the amount certified by the Architect the Contractor may upon fourteen additional days of written notice to the Owner and Architect stop the Work until payment of the owed amount is received. The Contract time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable cost of shut down, delay, start up, plus interest as provided for in the Contract.

1.10 SUBSTANTIAL COMPLETION

- A. Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and when all required occupancy permits, if any, have been issued so that the Owner can occupy or utilize the Work for its intended use.
- B. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work. The time fixed by the Architect for the completion of all items on the list accompanying the Certificate of Substantial Completion shall not be greater than 30 days. The Contractor shall complete items on the list within such 30 day period. If the Contractor fails to do so, the Owner in its discretion may perform the Work by itself or others and the cost thereof shall be charged against the Contractor. If more than one inspection by the Architect for the purpose of evaluating corrected work is required by the subject list of items to be completed or corrected, it will be performed at the Contractor's expense.
- C. Upon the receipt of the Contractor's list, the Architect will make an inspection and designate the Work qualified to be substantially complete. If any Work on the list or any additional Work required for utilization of the Work by the Owner is incomplete or not correct, the Contractor shall complete such Work before issuance of the Certificate of Substantial Completion. In such case the Contractor shall submit a request for another inspection by the Architect upon completion of the Work required for Substantial Completion.
- D. At the time the Architect commences the Substantial Completion Inspection, if the Architect discovers excessive additional items requiring completion or correction, the Architect may decline to continue the inspection, instructing the Contractor as to the



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general classification of deficiencies which must be corrected before the Architect will resume the Substantial Completion Inspection. If the Contractor fails to pursue the Work so as to make it ready for Substantial Completion Inspection in a timely fashion, the Architect shall, after notifying the Contractor, conduct inspections and develop a list of items to be completed or corrected. This list of items shall be furnished to the Contractor who shall proceed to correct such items within 7 days. The Architect will conduct additional inspections. The Architect will involve the Owner for 1) The cost of inspections between the termination of the initial Substantial Completion Inspection and the commencement of the satisfactory Substantial Completion Inspection, 2) The cost of inspection or review after the 7 day period established for the completion of the list by the Contractor. The Contractor shall reimburse the Owner for such cost, and the Owner may offset the amounts payable to the Architect for such services from the amounts due the Contractor under the Contract Documents.

- E. When the Work is designated portion thereof is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the determine the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.
- F. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon acceptance, the Owner shall make payment of retainage applying to such Work or designated portion thereof.
- G. The Contractor shall fully complete all Work under its Contract within thirty (30) days of receiving a Certificate of Substantial Completion with attached list of items required to be completed or corrected. Failure to do so may serve as cause for the Owner to declare the Contractor in default and terminate the Contractor pursuant to ARTICLE 10 of these Supplementary General Conditions.

1.11 PARTIAL OCCUPANCY OR USE

- A. Owner shall have an option for partial occupancy or use upon a written agreement between the Contractor and Owner to determine the responsibilities of each party. Partial occupancy does not constitute acceptance of Work not complying with the requirements of the Contract Documents.
- B. Immediately prior to such partial occupancy or use, Owner, Architect, and Contractor shall inspect the area to be occupied to record the conditions of the Work.
- C. Agreements as to the acceptance of the Work not complying with the requirements of the Contract Documents shall be in writing.

1.12 FINAL COMPLETION AND FINAL PAYMENT



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- A. Upon receipt of Contractor's written notice that the Work is ready for final inspection and upon receipt of the final Application for Payment the Architect shall timely make such inspection determine if the Work is acceptable per Contract Documents. If the Work is acceptable, the Architect shall issue a final Certificate for Payment stating that to the Architect's best knowledge and presented information the work has been completed in accordance to the Contract Documents.
- B. Final payment and all remaining retainage shall become due only when the following items are submitted to the Architect:
1. An Affidavit that all payrolls, bills for all items connected with the Work, and any other indebtedness have been paid (less amount owed by the final Payment and retainage withheld by the Owner).
 2. Evidence in writing or a certificate that the required insurance by the Contract Documents will not be canceled or that the insurance will not expire until at least thirty (30) days written notice has been given to the Owner.
 3. Written notice that the Contractor knows of no potential reasons that the insurance will not be renewable to fulfill the Contract Document requirements.
 4. Consent of surety to final payment.
 5. Any other documents, releases and waivers of liens, claims, receipts, copies of the expenditure, or any other items required by the Owner to assure no legal problems shall follow the Completion of the Contract. If a subcontractor refuses to furnish such a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unresolved for the Owner after the payments have been made, the Contractor shall refund the Owner all money associated with resolution of such lien including all costs and reasonable attorney's fees.
- C. The Contractor shall furnish such evidence as may be necessary to show that any out-of-state subcontractor or supplier has fully met the requirements of payment of taxes as established in any law of the State or local subdivision thereof which may be in effect at the time of final payment. The Owner will require the submission of such proof or evidence before final payment will be approved or made. The following must be submitted to the Architect before approval of final payment:
1. Affidavit of payment as required under this Paragraph shall be in the form of AIA Document G706 - Contractor's Affidavit of Payment of Debt and Claims.
 2. Release of liens as required under this Paragraph shall be in the form of AIA Documents G706A - Contractor's Affidavit of Release of Liens, or as may otherwise be reasonably requested or required to comply with Indiana law.
 3. Consent of Surety as required under this Paragraph shall be in the form of AIA Document G707 - Consent of Surety Company to Final Payment.



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4. Submit releases and final unconditional waivers of lien from major subcontractor and supplier.
 5. Submit certification stating that no materials containing asbestos were incorporated into the Work.
 6. Submit certification that all punch list items have been completed.
- D. If upon Substantial Completion final completion is delayed through no fault of the Contractor or by issuance of change orders adjusting/affecting the final completion date and if the Architect confirms the conditions be eligible for payment for Work completed without termination of the Contract. Final Payment, constituting the unpaid balance of the Contract Sum, shall be paid to the Contractor in full, including retainage or escrowed principal and escrowed income by the escrow agent, no less than 61 days following the date of Substantial Completion. If at that time there are remaining uncompleted items, an amount equal to 200 percent of the value of each item as determined by the Architect shall be withheld until said items are completed, and a Final Certificate of Payment issued by the Architect.
- E. Making of the final payment shall constitute a waiver of claims by the Owner except those arising from liens, claims, security interest, failure to comply with the Contract Documents or terms of special warranties.

1.13 REQUEST FOR PAYMENT

- A. Submit Applications for Payment to the Project Manager or as directed at the pre-construct i on meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.
- B. Submit payment requests in the form provided by the Owner with itemized data typed in accordance with the Bid Form .
- C. Provide construction photographs in accordance with Contract Documents.
- D. Submit Applications for Payment to the Project Manager or as directed at the pre-construct i on meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.
- E. Submit three (3) copies of each application; all signed and certified by the Contractor. .

1.14 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter.
- B. Submit one copy of data and cover letter for each copy of application.

PART 2 - PRODUCTS (NOT USED)



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PART 3 - EXECUTION (NOT USED)

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SECTION 00 80 10
CHANGES IN THE WORK

PART 1 - GENERAL

- 1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order ordering a minor change in the Work, subject to the limitations as may be stated elsewhere in the Contract Documents.
- 1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect.
- 1.3 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:
 - .1 The change in the Work;
 - .2 The amount of the adjustment, if any, in the Contract Sum; and
 - .3 The extent of the adjustment, if any, in the Contract Time.
- 1.4 Upon receipt of a Change Order, the Contractor shall promptly proceed with the change in the Work involved.
- 1.5 A Change Order signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately.
- 1.6 Unless otherwise provided elsewhere in the Contract Documents, costs for the purposes of Change Orders shall be limited to the following:
 - .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
 - .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
 - .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
 - .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
 - .5 Additional costs of supervision and field office personnel directly attributable to the change.
- 1.7 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.
- 1.8 The cost of the Contractors overhead and profit on any Change Order shall be:
 - .1 For extra Work completed by the Contractor with his own labor, 10 percent (10%) shall be added as the allowance for overhead and profit.
 - .2 For extra Work completed by Subcontractors of the Contractor, 10 percent (10%) shall be added as the allowance for overhead and profit.



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- .3 For Work deleted which would have been completed by Subcontractors of the Contractor, 10 percent (10%) shall be credited to the Owner as the allowance for overhead and profit.
 - .4 For Work deleted which would have been completed by Subcontractors of the Contractor, 5 percent (5%) shall be credited to the Owner by the Contractor as the allowance for overhead and profit."
- 1.9 When both additions and deletions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of net increase or decrease, if any.
- 1.10 In order to facilitate checking of quotations for extras or credits, proposals, (except those so minor that their propriety can be seen by inspection), shall be accompanied by a complete itemization of costs including labor, materials, and Subcontractors. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$500 be approved without such itemization. The Contractor shall submit same to the Architect within 14 days after receipt of proposal request.

END OF SECTION 00 80 10



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SECTION 00 80 50
HAZARDOUS MATERIALS

PART 1 - GENERAL

- 1.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.
- 1.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.
- 1.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described herein and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.
- 1.4 The Owner shall not be responsible for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.
- 1.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations, except to the extent that the cost and expense are due to the Owner's fault or negligence.



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- 1.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

END OF SECTION 00 80 50

Division 01

General Requirements



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SECTION 01 10 05
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE AND INTENT

- A. Description: The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.
- B. Work Included
1. The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, shop drawings, working drawings and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits necessary for the work, other than those permits such as the DEP permit and railroad permit which may have already been obtained. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.
 2. The cost of incidental work described in these General Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefor.
 3. The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment, prior approval of the Engineer notwithstanding.
- C. Public Utility Installations and Structures
1. Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto whether owned or controlled by the Owner, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewage, drainage, water or other public or private property which may be affected by the work shall be deemed included hereunder.
 2. The Contractor shall protect all public utility installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as approved by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.



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3. Public utility installations or structures owned or controlled by the Owner or other governmental body, which are required by this contract to be removed, relocated, replaced or rebuilt by the Contractor not identified in any separate bid item shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various contract items. No separate payment shall be made therefor.
4. Where public utility installations or structures owned or controlled by the Owner or other governmental body are encountered during the course of the work, and are not indicated on the Plans or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the Engineer, for the contractor to accomplish. If such work is accomplished by the utility having jurisdiction, it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be in accordance with the General and Supplemental General Conditions.
5. The Contractor shall give written notice to Owner and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Sunshine State One-Call of Florida, Inc. Call Center ("Call Sunshine") and per all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).
6. The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Engineer.

1.2 PLANS AND SPECIFICATIONS

- A. Plans: When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.
- B. Copies Furnished to Contractor: The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. Additional copies of the Plans and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.
- C. Supplementary Drawings: When, in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the Engineer and five paper prints thereof will be given to the Contractor.
- D. Contractor to Check Plans and Data: The Contractor shall verify all dimensions, quantities and details shown on the Plans, Supplementary Drawings, Schedules, Specifications or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such



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conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the Engineer, should such errors or omissions be discovered. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

- E. Specifications: The Technical Specifications consist of three parts: General, Products and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.
- F. Intent
 - 1. All work called for in the Specifications applicable to this Contract, but not shown on the Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Plans or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.
 - 2. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.
 - 3. The inclusion of the Related Requirements (or work specified elsewhere) in the General part of the specifications is only for the convenience of the Contractor, and shall not be interpreted as a complete list of related Specification Sections.

1.3 MATERIALS AND EQUIPMENT

- A. Manufacturer
 - 1. The names of proposed manufacturers, material men, suppliers and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Engineer for approval. Such approval must be obtained before shop drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.
 - 2. All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the Engineer, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.
 - 3. Any two or more pieces or material or equipment of the same kind, type or classification, and being used for identical types of services, shall be made by the same manufacturer.



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- B. Delivery: The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete the work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.
- C. Tools and Accessories
1. The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.
 2. Spare parts shall be furnished as specified.
 3. Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.
- D. Installation of Equipment.
1. The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.
 2. Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the Engineer during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.
 3. The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the Engineer and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.
 4. The Contractor shall, at his own expense, furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations.
 5. Grout shall completely fill the space between the equipment base and the foundation. All metal surfaces coming in contact with concrete or grout shall receive a coat of coal tar epoxy equal to Koppers 300M.
- E. Service of Manufacturer's Engineer: The Contract prices for equipment shall include the cost of furnishing (as required by equipment specifications sections) a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test and place in operation the equipment in conformity with the Contract Documents. After the equipment is placed in permanent operation by the Owner, such engineer or superintendent shall make all adjustments and tests required by the Engineer to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the Owner in the proper operation and maintenance of such equipment.



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1.4 INSPECTION AND TESTING

A. General

1. Inspection and testing of materials will be performed by the Owner unless otherwise specified.
2. For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Three (3) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer as a prerequisite for the acceptance of any material or equipment.
3. If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor will be notified thereof and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the Owner.
4. Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.
5. The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

B. Costs

1. All inspection and testing of materials furnished under this Contract will be performed by the Owner or duly authorized inspection engineers or inspections bureaus without cost to the Contractor, unless otherwise expressly specified.
2. The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor and such costs shall be deemed to be included in the Contract price.
3. Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the Owner for compliance. The Contractor shall reimburse the Owner for the expenditures incurred in making such tests on materials and equipment which are rejected for non-compliance.

C. Inspections of Materials: The Contractor shall give notice in writing to the Engineer, at least two weeks in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Engineer will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

D. Certificate of Manufacture: When inspection is waived or when the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of



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Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

- E. Shop Tests of Operating Equipment
1. Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents. No such equipment shall be shipped to the work until the Engineer notifies the Contractor, in writing, that the results of such tests are acceptable.
 2. Five copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company, shall be forwarded to the Engineer for approval.
 3. The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.
- F. Preliminary Field Tests: As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments and replacements required. The furnishing Contractor shall assist in the preliminary field tests as applicable.
- G. Final Field Tests
1. Upon completion of the work and prior to final payment, all equipment and piping installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.
 2. The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the Owner. The Supplier shall assist in the final field tests as applicable.
- H. Failure of Tests
1. Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails to make these corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees of specified requirements, the Owner, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.
 2. In case the Owner rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the Owner may, after the expiration of a period of thirty (30) calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under his Contract.



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- I. Final Inspection: During such final inspections, the work shall be clean and free from water. In no case will the final pay application be prepared until the Contractor has complied with all requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Document.

1.5 TEMPORARY STRUCTURES

- A. Temporary Fences: If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the Engineer, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The Engineer shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

1.6 TEMPORARY SERVICES

- A. First Aid: The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when people are employed on the work.

1.7 LINES AND GRADES

- A. Grade: All work under this Contract shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the Owner/Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.
- B. Safeguarding Marks
 1. The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or removing without authorization such established points, stakes and marks.
 2. The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.
- C. Datum Plane: All elevations indicated or specified refer to the Mean Sea Level Datum of the NGVD 1929 Datum and/or NAVD 1988.

1.8 ADJACENT STRUCTURES AND LANDSCAPING

- A. Responsibility
 1. The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent



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public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation and reconstruction of such items called for on the Plans or specified shall be included in the various Contract Items and no separate payments will be made therefore. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the Engineer, additional work is deemed necessary to avoid interference with the work, payment therefore will be made as provided for in the General Conditions.

2. Contractor is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.
3. Contractor shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions which might be aggravated by open excavation and construction. Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the Owner and to the satisfaction of the Engineer. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the Engineer.
4. Prior to the beginning of any excavations, the Contractor shall advise the Engineer of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

B. Protection of Trees

1. All trees and shrubs shall be adequately protected by the Contractor with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season and at the sole expense of the Contractor.
2. Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.
3. The Owner may order the Contractor, for the convenience of the Owner, to remove trees along the line or trench excavation. If so ordered, the Owner will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate Contract Items.

C. Lawn Areas: Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with new sod in the manner described in the Workmanship and Materials Paragraph in Section 02485, Seeding & Sodding.

D. Restoration of Fences: Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Engineer. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract



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Item or items, or if no specific Item is provided therefore, as part of the overhead cost of the work, and no additional payment will be made therefore.

1.9 PROTECTION OF WORK AND PUBLIC

- A. Barriers and Lights: During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers and lights as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public, in accordance with state and local requirements.
- B. Smoke Prevention: A strict compliance with ordinances regulating the production and emission of smoke will be required. No open fires will be permitted.
- C. Noise
 - 1. Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all engines or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.
 - 2. Except in the event of an emergency, no work shall be done between the hours of 7:00 P.M. and 7:00 A.M., or on weekends. If the proper and efficient prosecution of the work requires operations during the night or weekends, the written permission of the Owner shall be obtained before starting such items of the work.
- D. Access to Public Services: Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.
- E. Dust prevention: The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the roads and/or construction areas sprinkled with water at all times.

1.10 CUTTING AND PATCHING

- A. The Contractor shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.
- B. Refer to Section 01 10 45 for provisions on this subject.

1.11 CLEANING

- A. During Construction: During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish



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as is practicable and shall remove the same from any portion of the site if, in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable. The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

B. Final Cleaning

1. At the conclusion of the work, all equipment, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.
2. The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operating condition.

1.12 MISCELLANEOUS

A. Protection Against Siltation and Bank Erosion

1. The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage ditches.
2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the Engineer which results from his construction operations.

B. Protection of Wetland Areas: The Contractor shall properly dispose of all surplus material, including soil, in accordance with Local, State and Federal regulations. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection or Southwest Florida Water Management District.

C. Existing Facilities: The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

D. Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 10 05



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SECTION 01 10 45
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Provide penetrations of non-structural surfaces for installation of piping and electrical conduit.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with specifications and standards for each specific product involved.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Engineer. Do not proceed with work until Engineer has provided further instructions.

3.2 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value to integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work and maintain excavations free from water.

3.3 PERFORMANCE

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.



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- B. Fit and adjust products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- C. Restore work which has been cut or removed; install new products to provide completed work in accordance with the requirements of the Contract Documents.
- D. Replace surfaces airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- E. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.

END OF SECTION 01 10 45



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SECTION 01 10 50
FIELD ENGINEERING AND SURVEYING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. The Contractor shall provide and pay for field surveying service required for the project.
- B. The Contractor shall furnish and set all necessary stakes to establish the lines and grades as shown on the Contract Drawings and layout each portion of the Work of the Contract.
 - 1. All survey work required in execution of Project.
 - 2. All costs of construction layout shall be included in the unit and lump sum prices contained in the respective divisions of the Contract Bid Form.
 - 3. Civil, structural or other professional engineering services specified or required to execute Contractor's construction methods.

1.2 QUALIFICATION OF SURVEYOR AND ENGINEER

- A. All construction staking shall be conducted by or under the supervision of a Florida Registered Professional Surveyor and Mapper approved by the Owner. The Contractor shall be responsible for the layout of all such lines and grades, which will be subject to verification by the Engineer.

1.3 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are designated on the Contract Drawings.
- B. Locate and protect all survey monumentation, property corners and project control points prior to starting work and preserve all permanent reference points during construction. All costs associated with the replacement of all survey monumentation, property corners and project control points shall be borne by the Contractor.

Make no changes or relocations without prior written notice to Engineer. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations. Require surveyor to replace project control points which may be lost or destroyed. Establish replacements based on original survey control.

1.4 PROJECT SURVEY REQUIREMENTS

- A. The Contractor shall establish temporary bench marks as needed, referenced to data established by survey control points.

1.5 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.



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- B. The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings per Section 01720.

1.6 SUBMITTALS

- A. Submit name and address of Professional Surveyor and Mapper to Engineer for Owner's approval.
- B. Submit certificate signed by the Professional Surveyor and Mapper certifying that elevations and locations of improvements are in conformance, or nonconformance, with Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 10 50



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SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

- A. The Work consists of all items as indicated on the Drawings and as specified in the Project Manual and those items of construction not indicated but normal and necessary and usual in the construction industry for construction of a building project.

1.2 WORK UNDER SINGLE CONTRACT

- A. The intent of this Section to indicate the Work required by the Contractors and to provide information regarding the duties, responsibilities, and cooperation required by the Contractors, with similar requirements for the subcontractors and suppliers.
- B. Prime Contracts are defined to include the following contract described in the Schedule of Contract Responsibilities; and each is recognized to be a major part of project, with Work to be performed concurrently and in close coordination with Work of other Prime Contracts.
- C. The "Contract Documents," as defined in the General Conditions, include "the Drawings." Although Drawings are grouped and identified by classification of the Work, Contractors shall be responsible for their Work as specified herein and as indicated on the Drawings. Although the majority of the Drawings are "to scale," Contractors are directed to use indicated dimensions for determining material quantities and for other reasons. No additional monies will be allowed due to Contractors using "scale instruments" to determine material quantities or for other reasons.
- D. A single contract will be awarded as per the attached "Schedule of Contract Responsibilities" in this Section. Contractors shall include Work required by the Specifications and Drawings for each contract area defined in the Schedule.
- E. Work for the complete construction of the Project will be under a single contract with the Owner.

1.3 ADMINISTRATIVE RESPONSIBILITIES OF CONTRACTOR

- A. The Contractor shall be responsible for the maintenance of the Construction Schedule and the general supervision of every phase of the Work.
1. Requirements for a specific trade of contract will generally be described in that portion of the Specifications or Drawings related to that trade or contract. Such requirements may, however, be described in other Sections of the Contract Documents. Contractors will be held responsible for having carefully examined all Drawings and read all Divisions of the Specifications and all Contract Documents, to avoid omissions or duplications, and to ensure a complete job.
 2. Contractor must be fully informed about conditions relating to the construction of the Project and the employment of labor thereon. Failure to do so will not relieve a Contractor of his obligation to furnish all material and labor necessary to carry out the provisions of his Contract.



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3. Contractors shall cooperate with the Contractor in notifying him when the Work is at a stage to require the services of other contractors and shall notify the Contractor in the event that such other Contractors do not carry out their responsibilities in connection with such notification.
- B. Contractors shall cooperate with and assist the Contractor in the preparation of construction progress and procedures, schedule of product deliveries, and their effect on the overall project progress and completion. Other Contractors shall cooperate in getting their Work and the Work of their subcontractors completed according to the schedule as prepared and maintained by the Contractor. Contractor shall immediately notify the Contractor of a delay in delivery of products or the scheduled date of completion that may affect the total progress of construction.
- C. The Owner will furnish the topographical survey, either as a part of these Drawings or separately, giving the general topographical lines existing at the site and the property lines.
- D. Contractors required to make connections to existing utilities, especially sewerage where gravity flow occurs, shall verify grades and locations at points of such connections and shall notify the Architect of circumstances which would adversely affect the proper flow or connection to such facilities.

1.4 CONTRACTOR USE OF PREMISES

- A. Limit use of the premises to construction activities in areas indicated or as directed by the Project Manager or Owner's authorized representative.
 1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
 2. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
 3. Burial of Waste Materials: Prior to final grading and landscape development, the existing grade depression near the southwest corner of the site, as indicated, may be used for disposal of inert waste material from the construction process. Do not dispose of organic and hazardous material on site, either by burial or by burning.
 4. Off site storage should be kept to a minimum or eliminated altogether for fuel conservation.
- B. Contractor shall limit his use of the premises for work and for storage, to allow for work by other Contractors and Owner occupancy of adjacent buildings or building areas.
- C. Coordinate use of the premises, under direction of the Contractor.
- D. Contractor shall assume complete responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- E. Contractor shall move his stored products that interfere with operation of the Owner or separate Contractor.



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- F. Contractor shall obtain and pay for the use of additional storage of work areas needed for operation.
 - 1. Off site storage should be kept to a minimum or eliminated altogether for fuel conservation.

1.5 TAXES

- A. Taxes, which the Contractor must pay, which are legally enacted at the time bids are received, whether or not effective, shall be paid by the Contractor.

1.6 PERMITS, FEES, AND NOTICES

- A. The Contractor will secure the general building permit for the Owner. Contractor shall secure and pay for other permits, governmental fees, and licenses necessary for the proper execution and completion of his Work, which are applicable at the time the bids are also received. Fees to relocate utilities on Owner's property shall be included in the bid of the Contractor doing the relocation. Contractor shall be responsible for contacting the local governing agency for such cost information and requirements.
- B. Utility Tie-Ins: Shall be arranged with local utility company and other involved parties for minimum interruption of service.
- C. Inspections of installed work shall be performed by the governing authority as arranged for by the Contractor. Work shall not be covered until approved.
- D. Contractor shall give notices and comply with laws, ordinances, rules, regulations, and orders of public authorities bearing on the performance of his Work. If a Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Architect in writing, and necessary changes shall be adjusted by appropriate notification. If a Contractor performs Work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Architect, he shall assume full responsibility therefore and shall bear the costs attributable thereto.

1.7 LABOR AND MATERIALS

- A. Unless otherwise specifically noted, Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of his Work, whether temporary or permanent and whether or not incorporated or to be incorporated at the Work.
- B. Contractor shall enforce strict discipline and good working order among his employees or other persons carrying out Work of his Contract and shall not permit employment of unfit person or persons or anyone not skilled in the task assigned to them.



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1.8 PROJECT COORDINATION

- A. Contractor shall provide on-site supervision including a competent project coordinator and competent Superintendent to coordinate all aspects of his Work with other Contractors' Work. It shall be the full responsibility with all phases of Architectural, Structural, Mechanical (including Plumbing, Heating, Ventilation, and Sheet Metal Trades), Electrical Work, Site Work, Special Equipment, Kitchen Equipment, and other separate Contract Work. All Contractors shall fully cooperate with each other and the Contractor.
- B. Contractor shall coordinate the performance of his subcontractors in the utilization of the site, as well as in the actual performance of their contractual obligations to the Owner.
- C. Contractor shall cooperate with the Contractor and all other Contractors employed by the Owner.
- D. Contractor shall verify all dimensions shown on the Drawings and obtain all measurements required for proper execution of Work.
- E. Contractor shall see that sleeves and inserts for pipes, conduits, and similar items shall be correctly placed and kept in their proper positions in forms, walls, partitions, and floors, and not displaced by the placing of concrete or other construction work. All items shall be placed in ample time so as not to delay concrete operations or other work. Do not place sleeves so they pass vertically through beams, girders, and similar construction, unless locations are approved by the Architect. Locations of chases are indicated in the mechanical and electrical drawings. The separate Contractor and/or Subcontractor of the Work involved shall be responsible for inclusion of these items in the work, and shall advise the Contractor and Architect of all required changes.
- F. Before commencing work, Contractor shall examine all spaces, surfaces, and areas indicated on the Drawings to receive their Work. Report necessary corrections in writing immediately to the Contractor. Do not proceed until corrections (if any required) have been made. Commencing work signifies this Contractor's acceptance of said spaces, surfaces, and areas, and of job conditions.
- G. Temporary Omission of Work: If any materials and finish are of such nature that it is necessary to temporarily omit certain portions of work (as illustrated on Drawings or specified in Specifications) in order to make final installation, the Contractor whose work is involved shall omit such parts of this work or finish as necessary until other said work and/or materials have been installed and shall then return and install such omitted parts of his work as part of this Contract and without additional cost to the Owner.

1.9 VERIFICATIONS OF EXISTING DIMENSIONS

- A. When verification of existing dimensions is required, the Contractor requiring said verification for the construction or fabrication of his material shall be the Contractor responsible for procurement of the field information.



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1.10 PROJECT SECURITY

- A. The Contractor shall be responsible for developing and conducting a security program, specifically oriented for the protection of preventing damage, injury, or loss to the entire project site and other property at the site or adjacent thereto. This shall be acceptable to the Owner and Architect, and shall remain in effect through Substantial Completion of the Project.
- B. Contractor shall be responsible for securing his work and equipment at the close of each workday.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 11 00



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SECTION 01 13 40
SHOP DRAWINGS, PROJECT DATA AND SAMPLES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the Engineer for review and approval: working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this section called data), and material samples (hereinafter in this section called samples) as are required for the proper control of work, including, but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
- B. Within thirty (30) calendar days after the effective date of the Agreement, the Contractor shall submit to the Engineer, a complete list of preliminary data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items and the date on which each Shop Drawing shall be submitted. Review of this list by the Engineer shall in no way relieve the Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.
- C. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log should include the following items:
1. Submittal description and number assigned.
 2. Date to Engineer.
 3. Date returned to Contractor (from Engineer).
 4. Status of Submittal (No exceptions taken, returned for confirmation or resubmittal, rejected).
 5. Date of Resubmittal and Return (as applicable).
 6. Date material released (for fabrication).
 7. Projected date of fabrication.
 8. Projected date of delivery to site.
 9. Projected date and lead time so that product installation does not delay contact.
 10. Status of O&M manuals submitted.
- D. Related Section: Section 01 33 00 – Submittals.

1.2 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check all drawings, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the contract Documents.
- B. Determine and verify:
1. Field measurements.



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2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with Specifications and indicate all variances from the Specifications.
- C. The Contractor shall furnish the Engineer a schedule of Shop Drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The Contractor shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the Engineer, with No Exceptions Taken or Approved As Noted.
- E. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the Engineer receives them.
- F. The Contractor shall submit five (5) copies of descriptive or product data submittals to complement shop drawings for the Engineer plus the additional copies if the Contractor requires more than 1 being returned. The Engineer shall retain four (4) sets.
- G. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by Engineer of the necessary Shop Drawings.

1.3 ENGINEER'S REVIEW OF SHOP DRAWINGS AND WORKING DRAWINGS

- A. The Engineer's review of drawings, data and samples submitted by the Contractor shall cover only general conformity to the Specifications, external connections and dimensions which affect the installation.
- B. The review of drawings and schedules shall be general and shall not be construed:
1. As permitting any departure from the Contract requirements.
 2. As relieving the Contractor of responsibility for any errors, including details, dimensions and materials.
 3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting any exception.
- D. When reviewed by the Engineer, each of the Shop and Working Drawings shall be identified as having received such review being so stamped and dated. Shop Drawings stamped "REJECTED" and with required corrections shown shall be returned to the Contractor for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to



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revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.

- F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.
- G. The Engineer shall review a submittal/resubmittal a maximum of three (3) times after which cost of review shall be borne by the Contractor. The cost of engineering shall be equal to the Engineer's actual payroll cost.
- H. When the Shop and Working Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- I. No partial submittals shall be reviewed. Incomplete submittals shall be returned to the Contractor and shall be considered not approved until resubmitted.

1.4 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for material and equipment which become an integral part of the Project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, drawings, setting drawings, schedule drawings, manufacturer's scale drawings and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.
- B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval and original signature as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval and original signature shall be returned to the Contractor for resubmission.
- C. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
 - 1. Number and title of the drawing.
 - 2. Date of Drawing or revision.
 - 3. Name of project building or facility.
 - 4. Name of contractor and subcontractor submitting drawing.
 - 5. Clear identification of contents and location of the work.
 - 6. Specification title and number.
- D. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility of executing the work in accordance with the Contract, even though such drawings have been reviewed.
- E. Data on materials and equipment shall include, without limitation, materials and



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equipment lists, catalog sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

- F. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five installations where identical equipment has been installed and have been in operation for a period of at least one (1) year.
- H. Only the Engineer will utilize the color "red" in marking shop drawing submittals.

1.5 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the Contractor's fabrication and erection drawings for structures such as roof trusses, steelwork, precast concrete elements, bulkheads, support of open cut excavation, support of utilities, groundwater control systems, forming and false work; underpinning; and for such other work as may be required for construction of the project.
- B. Copies of working drawings as noted above, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer and shall be submitted at least thirty (30) days (unless otherwise specified by the Engineer) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed without specific exceptions by the Engineer, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the Owner and Engineer shall not have responsibility therefor.

1.6 SAMPLES

- A. The Contractor shall furnish, for the review of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until reviewed by the Engineer.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.



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2. Full range of color, texture and pattern.
 3. A minimum of two samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
1. Name of product.
 2. Name of Contractor and Subcontractor.
 3. Material or equipment represented.
 4. Place of origin.
 5. Name of Producer and Brand (if any).
 6. Location in project.
(Samples of finished materials shall have additional markings that will identify them under the finished schedules.)
 7. Reference specification paragraph.
- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Review of a sample shall be only for the characteristics or use named in such and shall not be construed to change or modify any Contract requirements.
- E. Reviewed samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the reviewed samples. If requested at the time of submission, samples which failed testing or were rejected shall be returned to the Contractor at his expense.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 13 40



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SECTION 01 14 10
TESTING AND TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Owner shall employ and pay for the services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or called out in the Specifications. Owner may elect to have materials and equipment tested for conformity with the Contract Documents at any time.
 - 1. Contractor shall cooperate fully with the laboratory to facilitate the execution of its required services.
 - 2. Employment of the laboratory shall in no way relieve the Contractor's obligations to perform the work of the Contract.

1.2 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

1.3 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel; provide access to Work and/or to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor and no extra charge to the Owner shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.



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4. For storage and curing of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
1. When tests or inspections cannot be performed due to insufficient notice, Contractor shall reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.
- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the Engineer.
- H. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the contractor shall pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 14 10



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SECTION 01 15 10
TEMPORARY AND PERMANENT UTILITIES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

The Contractor shall be responsible for furnishing all requisite temporary utilities, i.e., power, water, sanitation, etc. The Contractor shall obtain and pay for all permits required as well as pay for all temporary usages. The Contractor shall remove all temporary facilities upon completion of work.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local codes and regulations and with utility company requirements.
- C. Comply with County Health Department regulations.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Materials for temporary utilities may be "used". Materials for electrical utilities shall be adequate in capacity for the required usage, shall not create unsafe conditions and shall not violate requirements of applicable codes and standards.

2.2 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with the applicable utility company for temporary power supply. Provide service required for temporary power and lighting and pay all costs for permits, service and for power used.

2.3 TEMPORARY WATER

- A. The Contractor shall arrange with Manatee County Utilities Customer Service office to provide water for construction purposes, i.e., meter, pay all costs for installation, maintenance and removal, and service charges for water used.
- B. The Contractor shall protect piping and fitting against freezing.

2.4 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall provide sanitary facilities in compliance with all laws and regulations.
- B. The Contractor shall service, clean and maintain facilities and enclosures.



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PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall maintain and operate systems to assure continuous service.
- B. The Contractor shall modify and extend systems as work progress requires.

3.2 REMOVAL

- A. The Contractor shall completely remove temporary materials and equipment when their use is no longer required.
- B. The Contractor shall clean and repair damage caused by temporary installations or use of temporary facilities.

END OF SECTION 01 15 10



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SECTION 01 17 20
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Contractor shall maintain at the site for the Owner one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Engineer's field orders or written instructions.
 - 6. Approved shop drawings, working drawings and samples.
 - 7. Field test records.
 - 8. Construction photographs.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the Engineer.

1.3 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the Engineer.

1.4 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
- C. Do not conceal any work until required information is recorded.
- D. Drawings; Legibly mark to record actual construction:
 - 1. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed



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- pipe material, class, etc. Locations of drainage ditches, swales, water lines and force mains shall be shown every 200 feet (measured along the centerline) or alternate lot lines, whichever is closer. Dimensions at these locations shall indicate distance from centerline of right-of-way to the facility.
2. Field changes of dimension and detail.
 3. Changes made by Field Order or by Change Order.
 4. Details not on original contract drawings.
 5. Equipment and piping relocations.
 6. Locations of all valves, fire hydrants, manholes, water and sewer services, water and force main fittings, underdrain cleanouts, catch basins, junction boxes and any other structures located in the right-of-way or easement, shall be located by elevation and by station and offset based on intersection P.I.'s and centerline of right-of-way. For facilities located on private roads, the dimensioning shall be from centerline of paving or another readily visible baseline.
 7. Elevations shall be provided for all manhole rim and inverts; junction box rim and inverts; catch basin rim and inverts; and baffle, weir and invert elevations in control structures. Elevations shall also be provided at the PVI's and at every other lot line or 200 feet, whichever is less, of drainage swales and ditches. Bench marks and elevation datum shall be indicated.
 8. Slopes for pipes and ditches shall be recalculated, based on actual field measured distances, elevations, pipe sizes, and type shown. Cross section of drainage ditches and swales shall be verified.
 9. Centerline of roads shall be tied to right-of-way lines. Elevation of roadway centerline shall be given at PVI's and at all intersections.
 10. Record drawings shall show bearings and distances for all right-of-way and easement lines, and property corners.
 11. Sidewalks, fences and walls, if installed at the time of initial record drawing submittal, shall be located every 200 feet or alternate lot lines, whichever is closer. Dimensions shall include distance from the right-of-way line and the back of curb and lot line or easement line.
 12. Sanitary sewer mainline wyes shall be located from the downstream manhole. These dimensions shall be provided by on-site inspections or televising of the sewer following installation.
 13. Elevations shall be provided on the top of operating nuts for all water and force main valves.
 14. Allowable tolerance shall be ± 6.0 inches for horizontal dimensions. Vertical dimensions such as the difference in elevations between manhole inverts shall have an allowable tolerance of $\pm 1/8$ inch per 50 feet (or part thereof) of horizontal distance up to a maximum tolerance of ± 2 inch.
 15. Properly prepared record drawings on mylar, together with two copies, shall be certified by a design professional (Engineer and/or Surveyor registered in the State of Florida), employed by the Contractor, and submitted to the Owner/Engineer.
- E. Specifications and Addenda; Legibly mark each Section to record:
1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 2. Changes made by field order or by change order.
- F. Shop Drawings (after final review and approval): Five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.



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1.5 SUBMITTAL

- A. Prior to substantial completion and prior to starting the bacteria testing of water lines, deliver signed and sealed Record Documents and Record Drawings to the Engineer. These will be reviewed and verified by the inspector. If there are any required changes or additions, these shall be completed and the entire signed and sealed set resubmitted prior to final pay application.
- B. The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings. Record drawings shall be certified by the professional(s) (Engineer or Surveyor licensed in Florida), as stipulated by the Land Development Ordinance and submitted on signed and sealed paper drawings, signed and dated mylar drawings together with an AutoCAD version on a recordable compact disk (CD).
- C. The CD shall contain media in AutoCad Version 2004 or later, or in any other CAD program compatible with AutoCad in DWG or DXF form. All fonts, line types, shape files or other pertinent information used in the drawing and not normally included in AutoCad shall be included on the media with a text file or attached noted as to its relevance and use.
- D. Accompany submittal with transmittal letter, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each Record Document.
 - 5. Signature of Contractor or his authorized representative.

Note: The data required to properly prepare these record drawings shall be obtained at the site, at no cost to the County by the responsible design professional or his/her duly appointed representative. The appointed representative shall be a qualified employee of the responsible design professional or a qualified inspector retained by the responsible design professional on a project-by-project basis.

PART 2 - STANDARDS

2.1 MINIMUM RECORD DRAWING STANDARDS FOR ALL RECORD DRAWINGS SUBMITTED TO MANATEE COUNTY

- A. Record drawings shall be submitted to at least the level of detail in the contract documents. It is anticipated that the original contract documents shall serve as at least a background for all record information. Original drawings in CAD format may be requested of the Engineer.
- B. Drawings shall meet the criteria of paragraph 1.04 D above.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 17 20



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SECTION 01 26 13
REQUESTS FOR INFORMATION (RFI) PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies Requests for Information (RFI) procedures.

1.3 DEFINITIONS

- A. Drawing/Plan Clarification: An answer from the Architect, on behalf of the Owner, in response to an inquiry from the contractor, intended to make some requirement(s) of the drawings or plans clearly understood. Drawing/plan clarifications may be sketches, drawings, or in narrative form and will not change any requirements of the drawings or plans. Responses to contractor inquiries shall be as outlined in "Requests for Information" as specified herein.
- B. Non-Conformance Notice: A notice issued by the Architect, on behalf of the Owner, documenting that the Work or some portion thereof has not been performed in accordance with the requirements of the Contract Documents. Payment shall not be made on any portion of the Work for which a Non-Conformance Notice has been issued and the Work not corrected to the satisfaction of the Architect and Owner.
1. Upon receipt of a Non-Conformance Notice, the Contractor shall provide a written Response to Non-Conformance Notice within five (5) working days after receipt of the Notice. The contractor's response shall detail either (a) why they believe that the work was performed in accordance with the contract documents or (b) what corrective action they intend to take, at their sole expense, to correct the non-conforming work.
 2. If the Contractor disputes the issuance of the Non-Conforming Notice, the Construction Manager or Architect, on behalf of the Owner, has five (5) working days to respond by either (a) withdrawing the Non-Conformance Notice or (b) directing the Contractor to correct such Work. Such determination by the Construction Manager or Architect, on behalf of the Owner, shall be final and conclusive.
 3. If directed to correct the Work, the Contractor shall do so within five (5) working days after receipt of such direction from the Construction Manager or Architect, on behalf of the Owner, or such other time as may be agreed to.
- C. Project Communications: Routine written communications between the Architect, Owner, and Contractor which are in letter, field memo, or fax format. Such communications shall not be identified as Requests for Information nor shall they substitute for any other written requirement pursuant to the provisions of these Contract Documents.



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- D. Requests for Information: A request from the Contractor or one of its subcontractors, to the Architect, on behalf of the Owner, seeking an interpretation or a clarification of some requirement of the Contract Documents. The contractor shall clearly and concisely set forth the issue for which it seeks clarification or interpretation and why a response is needed. The contractor shall, in the written request, set forth its interpretation or understanding of the contract's requirements along with reasons why it has reached such an understanding.
1. Responses from the Architect, on behalf of the Owner, will not change any requirements of the Contract Documents. Responses to RFI's will be as further defined herein.

1.4 REQUESTS FOR INFORMATION

- A. In the event the contractor or subcontractor, at any tier, determines that some portion of the drawings, specifications, or other contract documents requires clarification or interpretation, the contractor shall submit a Request for Information in writing. Requests for Information shall only be submitted by the Prime Contractor and shall only be submitted on the Request for Information form provided.
1. The contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed. In the Request for Information, the contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
- B. The Architect, on behalf of the Owner, will review all Requests for Information to determine whether they are Requests for Information as defined in the Contract Documents. If it is determined that the document is not an RFI, it will be returned to the contractor, unreviewed as to content, for resubmittal on the proper form in the proper manner.
- C. Responses to Requests for Information shall be issued within five (5) working days of receipt of the request from the contractor, unless the Architect determines that a longer time is needed to provide an adequate response. If a longer time is deemed necessary by the Architect, then the Architect shall, within five (5) working days of the receipt of the request, notify the contractor of the anticipated response time.
1. If the contractor submits a Request for Information on an activity with five (5) working days or less of float on the current project schedule, the contractor shall not be entitled to any time extension due to the time it takes the Architect, on behalf of the Owner, to respond to the request provided that the Architect responds within the five (5) working days set forth above.



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- D. Responses from the Architect, on behalf of the Owner, will not change any requirements of the Contract Documents. In the event that the contractor believes the response to a Request for Information will cause a change to the requirements of the Contract Documents, the contractor shall immediately give written notice that the contractor considers the response to be a Change Order. Failure to give such written notice immediately shall waive the contractor's right to seek additional time or cost under the provisions set forth in the General Conditions.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 26 13



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SECTION 01 26 14
PROPOSAL REQUEST (PR) PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General Conditions, and other Division-1 Specification Sections, apply to the Work of this Section and all Sections in the Project Manual whether or not specifically indicated.

1.2 SUMMARY

- A. This section includes administration and procedural requirements for proposal requests.
- B. Measurement and payment criteria applicable to work required.

1.3 DEFINITION

- A. A Proposal Request is a written direction in the form of an AIA Document from the Architect, Contractor and Owner used to document changes in Scope of work and to identify the cost impact of the change.

1.4 CAUSE FOR PROPOSAL REQUESTS

- A. Changes in Scope of work may be affected by:
 - 1. As a result of Design Changes that are cost related changes in order to complete or enhance the scope of the change in question and results in added value to the Owner.
 - 2. As an Owner requested change that is a cost related change in scope that is initiated by the Owner.
 - 3. As a unforeseen change that is a cost related change in scope that is most generally related to existing site conditions or existing facility that could not have been known at Bid time and clearly unidentifiable.
 - 4. As a value engineering change that is a cost related change that after identifying or solving techniques the required function at the lowest or lower cost achieved.
 - 5. As a construction change that is a cost related change that is closely related to a design change but is brought to the attention of the Architect due to installation means and method or construction clarification.

1.5 PROCEDURES

- A. The Architect shall issue written direction through a Proposal Request (AIA Document G-709) which will include detailed information, drawings or sketches and changes in scope of work to the Contract Document.



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- B. The Contractor shall review the Proposal Request and submit their cost Proposal for the cost related changes.
 - 1. Contractor shall indicate if the cost is an add to or deduct from the Contract Sum. Proposal requests may be issued for deduct cost items as well.
- C. The Contractor shall submit their cost proposal within ten (10) working days or state in writing when the Proposal will be returned based on the given circumstances. Each proposal shall include a material and labor breakdown for all work performed by their own forces, or subcontractor's forces. Any supporting time sheets for time and material work and subcontractors cost proposals shall be included in the Prime Contractors' Proposal. All of these items shall be included in deduct proposal requests as well.
- D. Each Proposal issued by the Contractor shall specifically address any required additional or deducted contract time. If no mention is made it is assumed that none is required. No consideration of additional time will be given for previously approved Proposals without specific written approval from the Owner or Architect.
- E. The maximum aggregate increased cost for combined overhead and profit shall be as noted in the General and Supplementary Conditions. This combined overhead and profit as specified shall be used in deduct proposal requests as well.
- F. The value of any scope of work change shall be determined by mutual acceptance of a lump sum, by unit prices or by time and material basis not to exceed plus the appropriate mark-up.
- G. The Architect shall review the contractors cost proposal and provide a recommendation to the Owner.
- H. The Owner reserves the right to reject the contractors cost proposal associated with the Proposal Request.
- I. The Owner shall review the recommendations of the Architect and if appropriate approve the contractors cost proposal. A memorandum shall be issued to the contractor notifying the contractor of approval with any clarifications.
- J. The approved Proposal Request shall become a part of the contract documentation when issued in a Change Order. The Owner reserves the right to include multiple Proposal Requests in one Change Order.
- K. For payment purposes, the Contractor may list each Change Order by number with a listing of each Proposal Request on the schedule of values submitted with each Pay Application. The Owner will pay for approved percentages of each Proposal Request until completed.
- L. The Contractor shall carry out the scope of work changes after notification of approval. Work related to the Proposal Request shall be carried out within a reasonable time in order to not delay other work or to cause increased cost because of other work. The Contractor shall have ten (10) working days in which to respond to Proposal Request or to notify the Architect in writing of the date on which the Proposal is anticipated. These requirements apply to deduct proposal requests as well.



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- M. If the contractor fails to respond to the Proposal Request or notify the Architect within (10) calendar days, this lack of action shall be construed as no additional cost for the Proposal Request.
- N. If the contractor's cost proposal is rejected by the Architect, all parties shall review the scope of work and cost proposal and agree to an acceptable cost.
- O. If the Contractor and Architect can not come to an agreement on an acceptable cost, the Contractor may be directed to proceed with the scope of work changes on a time and material basis not to exceed the Contractor's cost Proposal. The Contractor shall be required to submit daily time sheets for the Architect to review and approve. The Owner shall review and approve the final costs upon recommendation of the Architect.

1.6 CHANGE ORDERS

- A. The Architect shall assemble the Change Order by Proposal Request or by grouping a number of Proposal Requests.
- B. Two original copies of the Change Order shall be printed for signatures. Upon completion of the signature process an original copy will be forwarded to the Contractor.
- C. The Contractor shall provide a new non-collusion affidavit with the return of the Change Order after signing.
- D. Payment for the Change Order will be possible after signatures are obtained from the Architect, the Contractor and the Owner and upon acceptance by the Owner.

1.7 AS-BUILT DOCUMENTATION

- A. It is imperative that the Contractor update their as-built documents in the field for each and every Proposal Request that changes the content of the Document. The Owner reserves the right to inspect the Contractor's as-built document prior to each Pay Application. The status of the Contractors as-builts may result in withheld payment for that portion of the work.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 26 14



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SECTION 01 31 13
PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
1. Coordination.
 2. Administrative and supervisory personnel.
 3. General installation provisions.
 4. Cleaning and protection.
- B. Field engineering is included in Section 01 10 50, Field Engineering and Surveying.
- C. Progress meetings, coordination meetings and pre-installation conferences are included in Section 01 31 19, Project Meetings.
- D. Requirements for the Contractor's Construction Schedule are included in Section 01 33 00, Submittals.

1.3 COORDINATION

- A. Coordination: Construction Manager shall coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- C. Administrative Procedures: Construction Manager shall coordinate scheduling and timing



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of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project Close-out activities.
- D. Conservation: Construction Manager shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

- A. Coordination Drawings: Construction Manager shall prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components, and as may be directed or requested by the Architect.
1. Show the interrelationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Comply with requirements contained in Section 01 33 00, Submittals.
 4. Refer to Division-23 Section "Basic Mechanical Requirements," and Division-26 Section "Basic Electrical Requirements" for specific coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.
1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.



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- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration before or at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Excessively high or low temperatures.
 - 4. Thermal shock.
 - 5. Excessively high or low humidity.
 - 6. Air contamination or pollution.



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7. Water or ice.
 8. Solvents.
 9. Chemicals.
 10. Light.
 11. Radiation.
 12. Puncture.
 13. Abrasion.
 14. Heavy traffic.
 15. Soiling, staining and corrosion.
 16. Bacteria.
 17. Rodent and insect infestation.
 18. Combustion.
 19. Electrical current.
 20. High speed operation,
 21. Improper lubrication,
 22. Unusual wear or other misuse.
 23. Contact between incompatible materials.
 24. Destructive testing.
 25. Misalignment.
 26. Excessive weathering.
 27. Unprotected storage.
 28. Improper shipping or handling.
 29. Theft.
 30. Vandalism.
 31. Mold.
 32. Mildew.
- D. Refer to Section 01 74 13 for additional construction cleaning requirements.

END OF SECTION 01 31 13



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SECTION 01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference.
 - 2. Coordination Meetings.
 - 3. Progress Meetings.
- B. Construction schedules are specified in another Division-1 Section.

1.2 PRE-CONSTRUCTION CONFERENCE

- A. The Contractor shall schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. Tentative construction schedule.
 - 2. Critical Work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing Applications for Payment.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, Product Data and Samples.
 - 8. Preparation of record documents.
 - 9. Use of the premises.
 - a. Owner's requirements.
 - 10. Office, Work and storage areas.
 - 11. Equipment deliveries and priorities.
 - 12. Safety procedures.
 - 13. First aid.
 - 14. Security.
 - 15. Housekeeping.
 - 16. Working hours.



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1.3 COORDINATION MEETINGS

- A. The Contractor shall conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.4 PROGRESS MEETINGS

- A. The Contractor shall conduct progress meetings at the Project site at regularly scheduled intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, Contractor, subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
 - 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 2. Review the present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off-site fabrication problems.
 - f. Access.
 - g. Site utilization.
 - h. Temporary facilities and services.
 - i. Hours of Work.
 - j. Hazards and risks.
 - k. Housekeeping.



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- I. Quality and Work standards.
 - m. Change Orders.
 - n. Documentation of information for payment requests.
- D. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- 1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 19



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SECTION 01 33 00
SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Work of this Section shall be included as a part of the Contract Documents of each Contractor on this Project.

1.2 SUBMITTAL PROCEDURES

- A. Submittals, including those specified herein to be submitted to the Architect, excluding those directed to a specific individual, shall be submitted directly to the Contractor for his review. Contractor will forward required submittals to the Architect for his review and approval.

1. **Contractors shall submit shop drawings in electronic format.** All electronic format drawing submittals shall be in Adobe Acrobat pdf format. All electronic format product data or other information shall be submitted in Adobe Acrobat pdf format. Coordinate with Architect prior to submitting.

- B. Contractors on this Project shall provide submittals in accordance with the requirements of this Section. Where a submittal is required by a Contractor but assistance from others, Contractors shall participate and cooperate to expedite each submittal.

- C. Where submission of samples, shop drawings, or other items are required from suppliers or subcontractors, it shall be the responsibility of the Contractor for whom the subcontractor is executing the Work to see that the submittal items required are complete and properly submitted, and corrected and resubmitted at the time and in the order required so as not to delay the progress of the Work. Submittals shall be made through the Contractor.

- D. The Contractor shall check all shop drawings, samples, and other submittals and submit them to the Architect with a letter of transmittal giving his approval, comments, and suggestions. Each transmittal shall include the following information:

1. Date Submitted.
2. Project title and number.
3. Contractor's name and address.
4. **Identification by Specification Section and quantity submitted for each submittal including name of subcontractors, manufacturer, or supplier.**
5. Notification of deviations from the Contract Documents for each submittal.
6. Contractor's written approval marked on each submittal. If contractor's submittals are not stamped and reviewed by the contractor prior to submitting for review, submittals will be sent back to the contractor.
7. If there is more than one building in the project, shop drawings are to be submitted and packaged for each building and submitted in packages for each separate building. Shop drawings not submitted in this fashion may be rejected.

- E. The Contractor shall prepare, review, and stamp with his approval and submit, with reasonable promptness or within the specified time periods and in orderly sequence so as



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to cause no delay in the Work or in the Work of another contractor, submittals required by these Contract Documents or subsequently required by modifications.

1. If the product is not as specified or approved by Addenda, it will be rejected by the Architect. Contractor shall not make submittals if the product manufacturer is not specified or listed in the Addenda. This will delay the submittal process and the contractor shall assume full responsibility for any delays caused by unapproved manufacturer submittals.
- F. The Contractor and Architect shall review and take action on submittals with reasonable promptness, so as to cause no delay in the progress. A reasonable period of time for review of and action taken on submittals shall be as specified herein, but in no case shall it be more than 14 calendar days from the time it is received by the Architect until the time the submittal is marked and forwarded or returned. Contractors shall allow sufficient mailing time for submittals.
- G. The same submittal will only be reviewed a maximum of two (2) times. If the same submittal is not correct within the two (2) submittal limit for the same item, the contractor will be charged for the additional reviews required. The Architect's additional time will be on an hourly basis, which amount will be deducted from the contractor's Contract Sum by Change Order.
- H. Identification of Submittals: Submittals, including re-submittals, shall be numbered with a Submittal Number. The Submittal Number shall consist of the applicable specification section number followed by a suffix number in consecutive order matching the numbers on the Submittal Log. The form of Submittals Numbers shall be as follows: ## ## ## - ### (example: 09 90 01-01).

1.3 REQUIRED SUBMITTALS

A. Construction Schedules

1. A linear bar chart time control schedule shall be provided by the Contractor.
 - a. Each Contractor shall work overtime nights, and weekends, if necessary to maintain his portion of the schedule at no additional cost to the Owner.
 - b. Each Contractor is responsible to expedite approvals and deliveries of material so as not to delay job progress.
 - c. Each Contractor shall begin each phase of his work as quickly as physically possible, but not to impede or jeopardize the Work of other Contractors.
 - d. Each Contractor shall cooperate fully with the Contractor in the coordination of the Work with other Contractors and the convenience of the Owner as indicated in the Specifications.
 - e. Each Contractor shall participate in the updating of the schedule on a bi-weekly basis during the entire life of his contract.
 - 1) Contractor's schedule shall be updated bi-weekly and submitted to the Architect and other involved parties at least 2 days prior to the bi-weekly progress meeting.



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- f. The Project Construction Schedule will be updated reflecting Contractor's revised schedule and progress meeting results.

B. Schedule of Values

1. Contractor shall prepare and submit to the Architect a Schedule of Values for approval within 7 days after notice is given to proceed with Work. The Schedule of Values shall consist of a complete breakdown of the Contractor's contract sum showing the various items of the Work, divided so as to facilitate the approval of payments to the Contractor for Work completed. In addition to and conjunctive with the division of various items of work, the breakdown shall separate individual buildings within the Project, shall separate sitework from building(s) components and shall separate remodeling/renovation work from new construction work. The Schedule of Values shall be prepared on AIA Document G703, Continuation Sheet, showing the breakdown of items of Work and supported by such data to substantiate its correctness as the Architect may require.
2. Schedule of Values shall be coordinated with the Construction Schedules such that the percentages of Work completed closely relates to the values for the Work shown on the request for payments. At the beginning of the Project, each Contractor shall prepare a schedule of monthly progress payments showing the amount the Contractor may require for the Work proposed to be completed. The purpose of this schedule is to allow the Owner to determine what amounts of funds he will be required to have available each month during the progress of construction for progress payments.

C. Project Use Site Plan

1. The Contractor, in cooperation with other Contractors on this Project, shall prepare a proposed project use of the site plan.
2. Contractors shall confine operations at the site to areas within the areas indicated and as approved on the use of the site plan, and as permitted by law, ordinances, and permits. Site shall not be unreasonably encumbered with materials, products, or construction equipment.

D. Shop Drawings and Product Data

1. Shop drawings are drawings, diagrams illustrations, schedules, performance charts, brochures, and other data which are prepared by the Contractor or subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.
 - a. Advertising brochures will not be accepted as shop drawings.
 - b. Erection and setting drawings as referred to in these Specifications will be considered as shop drawings and shall be submitted along with detailed shop drawings.
 - c. Where schedules are required to indicate locations, they shall be submitted as part of the shop drawing package for that item.
 - d. Shop drawings and schedules shall repeat the identification shown on the Contract Drawings.



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2. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.
 - a. Clearly mark each copy to identify pertinent materials.
 - b. Show dimensions and clearance required.
 - c. Show performance and characteristics and capacities.
 - d. Show wiring diagrams and controls.
 - e. Note variances from the Contract Documents including manufacturer's recommended changes to sequencing and to piping and control diagrams.
3. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, Subcontractor, submittal name, and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space for Architect's "Action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through the Contractor will be returned "without action", which does not mean approval.
4. By approving and submitting shop drawings, the Contractor thereby represents that he has determined and verified field measurements, field construction criteria, materials, catalog numbers, and similar data, and that he has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents prior to submitting to the Architect.
5. The Contractor shall make corrections required by the Architect and shall resubmit the required number of corrected copies of shop drawings 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.
6. The Architect will review shop drawings only for conformance with the design concept of the Project and with the information given in the Contract Documents. The Architect's review of a separate item shall not indicate review of an assembly in which the item functions.
7. The Architect's review of shop drawings shall not relieve the Contractor of responsibility for any deviation from the requirements or the Contracts documents unless the Contractor has informed the Architect in writing of such deviation at the time to submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor from responsibility for errors or omissions in the shop drawings.
8. Notations and remarks added to shop drawings by the Architect are to insure compliance to Drawings and Specifications and do not imply a requested or approved change to contract cost.
9. Should deviations, discrepancies, or conflicts between shop and contract drawings and Specifications be discovered, either prior to or after review, Contract Documents shall control and be followed.
10. The following number of shop drawings and product data submittals shall be made on this Project. Where an insufficient number of copies are submitted, no action will be taken until proper number of copies have been received. Additional copies beyond the number required will be discarded.



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Schedule of Required Shop Drawings and Product Data

11. Architectural/Structural/Mechanical/Electrical/Civil
 - a. Upload to ftp site as instructed by the Architect.
12. Shop drawings will be marked as follows: Contractors shall take the following action for each respective marking:
 - a. "REVIEWED AND RELEASED" - Copies will be distributed as indicated under above schedule.
 - b. "REVIEWED AND RELEASED WITH CORRECTIONS" - Contractor may proceed with fabrication, taking into account the necessary corrections. Corrected shop drawings shall be resubmitted before fabrication of this Work is completed. Only shop drawings marked "REVIEWED AND RELEASED" by Architect will be permitted on the project site.
 - c. "REVISE AND RESUBMIT" - Contractor will be required to resubmit shop drawings in their entirety. No fabrication or installation shall be started until shop drawings so marked have been completely revised, resubmitted, and marked by Architect according to preceding Paragraphs 1. or 2.
13. Where re-submittal is required, submittal and distribution shall be as specified in subparagraph 11 above.
14. One set of shop drawings marked by Architect "REVIEWED AND RELEASED" be filed on the project site at all times. Shop drawing file may be electronic and accessible by the Architect and Owner on the on-site project computer. No installation of equipment, materials, or products is to be incorporated into the Project until shop drawings marked by Architect "REVIEWED AND RELEASED" have been received on the Project.

E. Samples

1. The Contractor shall submit to the Architect triplicate (3) samples to illustrate materials or workmanship, colors, and textures, and establish standards by which the Work will be judged. A complete list of required samples will be submitted to the Contractor for use as a check list.
2. By approving and submitting samples, the Contractor thereby represents that he has determined and verified materials, catalog numbers, and similar data, and that he has checked and coordinated each sample with the requirements of the Work and of the Contract Documents prior to submitting to the Architect.
3. The Contractor shall resubmit the required number of correct or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted samples to revisions other than the changes requested by the Architect on previous submissions.
4. The Architect will review samples 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.
5. The Architect's action shall not relieve the Contractor of responsibility for deviations from the requirements of the Contract Documents unless the



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Contractor has informed the Architect in writing of the deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's action relieve the Contractor from responsibility for errors or omissions in the samples.

6. Unless otherwise specified, samples shall be in triplicate and of adequate size to show function, equality, type, color, range, finish, and texture of material. When requested, full technical information and certified test data shall be supplied.
 - a. Each sample shall be labeled, bearing material name and quality, the Contractor's name, date, project name, and other pertinent data.
 - b. Transportation charges to and from the Architect's office must be prepaid on samples forwarded. Approved samples shall be retained by the Architect until the Work for which they were submitted has been accepted.
7. Materials shall not be ordered until approval is received. Materials shall be furnished, equal in every respect to approved samples. Where color or shade cannot be guaranteed, the maximum deviation shall be indicated by the manufacturer. Work shall be in accordance with the approved samples.

F. List of A.I.A. Documents (Contractors Source)

1. The following documents are required in the Project Manual to be furnished and executed by the Contractor(s) and submitted to the Architect at various stages of the Project Work. Refer to Supplementary Conditions and Division 1.
 - G702 - Application and Certification for Payment
 - G703 - Continuation Sheet
 - G705 - Certificate of Insurance
 - G706 - Contractor's Affidavit of Payment of Debt and Claims
 - G706A - Contractor's Affidavit of Release of Liens
 - G707 - Consent of Surety Company to Final Payment, if required
 - G707A - Consent of Surety to Reduction in or Partial Release of Retainage, if required.
2. Special documents, which may be required, will be furnished by the Architect.

G. Operation and Maintenance Data

1. Typed or printed instruction covering the operation and maintenance of each item of equipment furnished, shall be prepared and placed in a notebook by the Contractor and submitted to the Architect for review and transmittal to the Owner. The instructions, as applicable, shall include the following:
 - a. Any schematic piping and wiring diagrams;
 - b. Any valve charts and schedules;
 - c. Any lubrication charts and schedules;
 - d. Guides for troubleshooting;
 - e. Pertinent diagrams of equipment with main parts identification;
 - f. Manufacturer's data on all equipment;
 - g. Operating and maintenance instructions for all equipment;



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- h. Manufacturer's parts list; and,
- i. Any testing procedures for operating tests.
 - 1) Three (3) copies of the above instruction books shall be furnished prior to Final Payment. The books shall describe the information to be covered clearly and in detail and shall be in form and content satisfactory to the Owner.
- 2. The Contractor shall instruct the Owner's operating personnel in the proper use, care and emergency repair of all equipment installed by it before Final Payment. The Contractor shall call particular attention to any safety measures that should be followed. The instruction shall be adequate to train the Owner's operating personnel in the proper use, care and emergency repair of such equipment.
- H. The work shall be furnished and installed in accordance with the Drawings, Specifications and as additionally required by the manufacturer's instructions, and where a conflict occurs between the Drawings or Specifications and the manufacturer's instructions, the contractor shall request clarification from the Architect prior to commencing the work and shall follow the interpretations given by the Architect.

1.4 MATERIAL SAFETY DATA SHEETS

- A. In compliance with the OSHA Hazard Communication Standard (1910.1200, 08-24-1987) contractors are required to have on the site, MSDS (Material Safety Data Sheets) for ALL products classified as hazardous that their firm has knowledge that they will be furnishing, using, or storing on the jobsite during the duration of this Project. MSDS sheets are not part of the shop drawing review process.
 - 1. The Contractor at completion of the Work shall provide the Owner with the MSDS sheets for the hazardous products used on the Project site during construction.

PART 2 - PRODUCTS (NOT USED).

PART 3 - EXECUTION (NOT USED).

END OF SECTION 01 33 00



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SECTION 01 42 19
REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Contractual Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. "Reviewed": The term "reviewed," when used in conjunction with the Architect's/Engineer's action on the Contractor's submittals, applications, and requests, is limited to the Architect's/Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- B. "Contractor": The term "contractor," "Contractor," "construction manager," or "Construction Manager " describes to entity who has a signed agreement with the Owner as the primary entity contracted to perform the Work. The terms are used interchangeably within this document.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "reviewed," "required," and "permitted" mean directed by the Architect/Engineer, requested by the Architect/Engineer, and similar phrases.
- D. "Furnish": The term "furnish" means to supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- E. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on the Drawings; or to other paragraphs or schedules in the Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted", "scheduled," and "specified" are used to help the user locate the reference. Location is not limited.
- F. "Install": The term "install" describes operations at the Project site including the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- G. "Installer": An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, who performs a particular activity including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- H. "Project site" is the space available to the Contractor for performing installation activities, either exclusively or in conjunction with others performing work as part of the Project.
- I. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- J. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the industry that control performance of the Work.
1. The term "experienced," when used with the term "installer," means having



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successfully completed a minimum of 5 previous projects similar in size and scope to this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.

2. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

- K. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's "MasterFormat" system.
- B. Specification Content: These Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: Where compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal to the Architect/Engineer for a decision before proceeding.



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1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect/Engineer for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in installation on the Project must be familiar with industry standards applicable to its installation activity. Copies of applicable standards are not bound with the Contract Documents.
 1. Where copies of standards are needed to perform a required installation activity, obtain copies directly from the publication source and make them available on request.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research Inc.'s "Encyclopedia of Associations," which is available in most libraries.

1.5 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 19



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SECTION 01 56 00
TEMPORARY PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section specified requirements for protection.
- B. Protection facilities required include, but are not limited to:
 - 1. Barricades, warning signs, lights.

1.2 QUALITY ASSISTANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, Fire Department and Rescue Squad rules.
 - 5. Environmental protection regulations.
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
 - 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
 - 2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- C. Inspections: Arrange for authorities having jurisdiction to inspect each disconnected utility. Obtain required certifications and permits.

PART 2 -PRODUCTS

2.1 EQUIPMENT

- A. First Aid Supplies: Comply with governing regulations.
- B. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers for NFPA recommended classes for the exposure.
 - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.



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PART 3 - EXECUTION

3.1 PROTECTION FACILITIES INSTALLATION

- A. Temporary Fire Protection: Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- C. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

END OF SECTION 01 56 00



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SECTION 01 70 00
PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 SUMMARY

- A. Closeout is hereby defined to include general requirements near the end of Contract Time in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner, and similar actions evidencing completion of the work. Specific requirements for individual parts of the Work are specified in Sections of Divisions 2 through 26. Time of closeout is directly associated to Date of Substantial Completion.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Prior to requesting Architect review for Certificate of Substantial Completion, (for either entire Work or portions thereof), complete the following and list known exceptions in request.
1. Advise Owner of pending insurance changeover requirements.
 2. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, agreements, final certifications, and other required closeout documents.
 3. Obtain and submit release enabling Owner's full and unrestricted use of the Work and access to services and utilities, including occupancy permits, operating certificates, and other similar required releases.
 4. Deliver tools, spare parts, extra stocks of materials, and similar physical items as specified to the Owner. Obtain receipts for deliveries.
 5. Make final changeover of locks and transmit keys to Owner and advise Owner's personnel of changeover in security provisions.
 6. Complete start-up testing of systems and instruction of Owner's operating/maintenance personnel. Discontinue and remove from project site temporary facilities and service, construction tools and facilities, mock-ups, and other construction elements.
 7. Complete final cleaning up requirements as specified in Section 01 74 13.

1.3 PREREQUISITES TO FINAL PAYMENTS

- A. Prior to requesting Architect final review for certification of final payment, complete the following:
1. Refer to the Supplementary Conditions.
 2. Submit final payment request with required closeout attachments.
 3. Submit copy of Architect's final punch list of itemized Work to be completed or corrected, stating that each and every item has been completed or otherwise resolved for acceptance.
 4. Submit record drawings, maintenance manuals, and similar final record information as specified.
 5. Submit certification of code compliance.
 6. Submit certification stating that no materials containing asbestos were incorporated into the Work.



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7. Plumbing Contractor shall submit certification stating that no flux or solder used for drinking water piping containing more than 0.2 percent lead, and that no pipe or fittings used for drinking water piping contained no more than 0.8 percent lead.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PUNCH LIST

- A. Prior to the Architect's preparation of a Project Punch List, each Contractor shall prepare his own punch list and submit to the Architect and General Contractor, for use by the Architect to facilitate completion of the Work.
- B. The Contractor's inspection shall be as thorough as possible, in accordance with his aspiration to provide first-class workmanship and maintain good reputation and shall include Work under his Contract, including that of his subcontractors.
- C. The Architect shall observe the Work, providing that the Work on the Contractor's punch list has been completed, and prepare the Project Punch List for use by Contractors and their subcontractors to expedite proper completion of the Work.
- D. The Architect will only perform two (2) punch list inspections. The Architect will do the first inspection prior to issuing the Substantial Completion certificate and will do a second inspection within 30 days of the first inspection to verify that the contractor has completed the outstanding items on the first inspection punch list. Additional inspections above and beyond as specified herein are at additional cost to the Contractor and the cost of such additional inspections will be deducted from the Contract by Change Order.

3.2 WARRANTY - CORRECTION OF THE WORK

- A. Architect will check to see if additional Work by the Contractor(s) is needed to make good the warranties. An itemized list will be furnished to the Contractor for corrective or replacement work.
 1. At approximately one month prior to the one year warranty expiration, the Owner, Architect, and a representative of the Contractor shall visit the site and prepare the warranty punch-list.
- B. This Work shall be completed immediately by the Contractor(s) after receiving notification.

3.3 CERTIFICATION OF CODE COMPLIANCE

- A. Prior to final payment, the contractor indicated below shall submit to the Architect (in duplicate), letters of certification of code compliance as follows:
 1. The Subcontractor(s) for Division 22, 23, 24, Mechanical Work, shall submit a



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letter certifying that mechanical installations comply with current applicable Codes.

2. The Subcontractor(s) for Division 26, 27, 28 Electrical Work, shall submit letters certifying that electrical wiring complies with NEC current applicable editions.
3. The Subcontractor for Division 26, 27, 28, Electrical Work, shall submit letters certifying that alarm systems and smoke and heat detection systems comply with State of Indiana Codes and Regulations, current applicable conditions.

3.4 MAINTENANCE AND OPERATING MANUALS

- A. Prior to Date of Substantial Completion, and a requirement prior to receiving final payment, each Contractor shall submit to the Architect three (3) copies of a comprehensive Maintenance and Operating Manual presenting complete directions and recommendations for the proper care and maintenance of visible surfaces as well as maintenance and operating instructions for equipment items which he has provided. Operation and Maintenance Manuals shall include the following:
 1. Schematic and piping and wiring diagrams.
 2. Valve charts and schedules.
 3. Lubrication charts and schedules.
 4. Guides for troubleshooting.
 5. Pertinent diagrams of equipment with main parts identification.
 6. Manufacturer's data on all equipment.
 7. Operating and maintenance instructions for all equipment.
 8. Manufacturer's parts list.
 9. Any testing procedures for operating tests.
- B. Operating instructions shall include necessary printed directions for correct operations, adjustments, servicing, and maintenance of movable parts. Also included shall be suitable parts lists, approved shop drawings, and diagrams showing parts location and assembly.
- C. Upon Architect's approval and prior to issuance of final payment(s), each contractor shall submit three (3) corrected and completed copies of Operating and Maintenance Manuals to the Architect.
- D. Finished manuals shall be loose-leaf type with hardboard covers and titled tabs identifying each particular portion or item of the Work.
- E. For each titled item or portion of the Work, manual must provide the names, addresses, and phone numbers of the following parties:
 1. Contractor/installer
 2. Manufacturer
 3. Nearest dealer/supplier
 4. Nearest agency capable of supplying parts and service
- F. For each manual label on front cover or spine, indicate the following information:
 1. Project name and address



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2. Owner's name
 3. Name and address of Architect
 4. Name and address of all contractors and their contacts
 5. Date of submission
- G. The contractor(s) shall instruct the Owner's operating personnel in the proper use, care and emergency repair of all equipment installed before final payment. The contractor(s) shall call particular attention to any safety measures that should be followed. The instruction shall be adequate to train the Owner's operating personnel in the proper use, care, and emergency repair of such equipment.
- H. Refer to Section 01 30 00 for additional requirements.

3.5 CHARTS AND LOCATIONS OF CONCEALED WORK

- A. The contractor(s) for Mechanical Work shall prepare suitable charts identifying and locating each concealed control or other concealed item requiring repair, adjustment, and maintenance. Charts shall be mounted in suitable frames with glass covers secured to wall where directed.
- B. Charts shall list each item, together with its function, item number and location.
- C. Locations throughout the building shall be identified on the wall or ceiling by permanent, non-obstructive plates, labels, or other approved means secured in a permanent manner.
- D. Chart details, identification methods, locations, and methods of attachment shall be specified or approved by the Architect at the jobsite upon full submission of proposed procedures and proper execution of same.

END OF SECTION 01 70 00



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SECTION 01 74 13
CONSTRUCTION CLEANING

PART 1 - GENERAL

1.1 RELATED WORK

- A. The Work of this Section shall be included as a part of the Contract Documents of each Contractor of this Project.

1.2 SUMMARY

- A. The Architect reserves the right to act on behalf of the Owner pertaining to the clean-up responsibilities that are a part of each Contractor's Work.

1.3 PURPOSE - DAILY CLEANING

- A. Define and emphasize the responsibility of each Contractor to remove his rubbish and debris from the construction site to guard against fire and safety hazards as well as to provide a more efficient construction operation for all Contractors. If this cleaning is not performed to the satisfaction of the Owner and the Architect, it will be performed for the Contractor at his expense.

1.4 PURPOSE - ROUTINE CLEANING

- A. Each Friday afternoon, and more often if necessary, each Contractor shall perform an overall cleanup of the entire site, including a broom cleaning of appropriate surfaces. The trades shall remove their rubbish and debris from the building site to the rubbish collection location promptly upon its accumulation and in no event later than the regular Friday general cleanup.

1.5 RUBBISH CONTAINER

- A. The General Contractor shall provide dumpster type rubbish container with lid, sized adequate for the Project waste, debris, and rubbish for the life of the Project.
- B. Dispose of container contents weekly or at more frequent intervals if required by inadequate container capacity.

1.6 SAFETY REQUIREMENTS

- A. Hazards Control (By each Contractor)
1. Store volatile wastes in covered metal containers, and remove from the premises daily.
 2. Prevent accumulation of wastes, which create hazardous conditions.
 3. Provide adequate ventilation during use of volatile or noxious substances.



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- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surface recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DAILY CLEANING

- A. Each Contractor shall execute daily cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Daily, during progress of work, clean site and public properties and dispose of waste materials, debris, and rubbish in dumpster type rubbish container provided under this Section.
- D. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- E. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- F. Place no new work on dirty surfaces.

3.2 ROUTINE CLEANING

- A. Employ experienced workmen for cleaning.
- B. Remove dirt, mud, and other foreign materials from sight exposed interior and exterior surfaces.
- C. Each Friday, or at more frequent intervals, if work activities justify same, perform the following cleaning. This includes all dirt, dust, and debris not identifiable as part of a Contract. Broom clean floor and paved surfaces; rake clean other surfaces of ground.



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- D. Maintain adjacent roads free from the accumulation of mud, rocks, rubbish, litter and debris resulting from construction activities.
- E. Remove litter, rubbish and debris from chases, whether the chases will be accessible or not.
- F. Maintain cleaning throughout the life of the Project.
- G. Should the Contractor fail in the performance of this Work, the Owner may perform such Work in accordance with Article 3 of the General Conditions.

3.3 FINAL CLEANING (Each Contractor)

- A. Each Contractor shall perform his respective final clean-up and shall leave the Work of the complete Project in clean, neat condition. The following are examples, but not by way of limitation, of cleaning levels required.
 - 1. Remove labels which are not required as permanent labels.
 - 2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
 - 3. Clean exposed exterior and interior hard surfaces to a dirt free condition, free of dust, stains, films, and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
 - 4. Wipe surfaces of mechanical and electrical equipment clean; remove excess lubrication and other substances.
 - 5. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - 6. Clean concrete floors in nonoccupied spaces broom clean.
 - 7. Vacuum clean carpeted surfaces and similar soft surfaces.
 - 8. Clean plumbing fixtures to a sanitary condition, free of stains, including those resulting from water exposure.
 - 9. Clean food service equipment to a condition, free of stains, including those resulting in water exposure.
 - 10. Clean light fixtures and lamps so as to function with full efficiency. Replace all lamps that are burnt out and/or flickering.
 - 11. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-chemical spills, and other foreign deposits. Rake grounds which are neither planted nor paved to a smooth, even textured surface.

END OF SECTION 01 74 13



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Division 02
Existing Conditions



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SECTION 02 41 13
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Selective demolition work requires the selective removal and subsequent offsite disposal of the following kinds of elements:
 - 1. Portions of existing building indicated on drawings and as required to accommodate new construction.
 - 2. Removal of interior partitions.
 - 3. Removal of doors and frames.
 - 4. Removal of existing windows.
 - 5. Removal of roof system.
- B. Removal Work Specified Elsewhere: Cutting nonstructural concrete floors and masonry walls for piping, ducts, and conduits is included with the work of the respective plumbing, mechanical and electrical specification sections in Divisions 22, 23 and 26.

1.2 SUBMITTALS

- A. Submit in accordance with Division 01 requirements.
- B. Submit schedule indicating proposed sequence of operations for selective demolition work to Architect for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
- C. Submit a minimum of 24 digital photographs in JPEG format of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Architect prior to start of work.

1.3 PROJECT CONDITIONS

- D. Occupancy: Owner will not occupy the building areas during selective demolition.
- E. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
- F. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
- G. Damages: Promptly repair damages caused to adjacent facilities by demolition work.



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- E. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
 - 1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- F. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- G. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
 - 1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
- H. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
- I. Explosives: Use of explosives will not be permitted.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
 - 1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 - 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 - 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
 - 4. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
 - 5. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.



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- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.2 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.
 - 1. If hazardous materials are encountered during demolition operations, comply with applicable Federal, State, and local regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Stop work immediately and notify Architect.
 - 2. Burning of removed materials is not permitted on project site.

3.3 CLEANUP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
 - 1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02 41 13



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Division 03
Concrete



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SECTION 03 35 00
CONCRETE FLOOR SEALERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all necessary materials, labor and equipment required to provide and install the concrete floor sealer, as specified herein and as indicated on the Drawings.

1.2 SUBMITTAL

- A. Product Data: Submit manufacturer's specification or specific products of the concrete floor sealer, including physical properties and performance properties and all tests described herein and submit all Material Safety Data sheets. Each individual component of the system will be evaluated on the basis of these standards. For any of the tests not listed in the manufacturer's standard nationally published data, the manufacturer must supply the missing data from an independent test laboratory tested according to the referenced standard. Manufacturer's standard color chart shall also be submitted and must afford the Architect color selection from at least 12 standard colors.
- B. The concrete floor sealing specialist shall submit a 6" x 6" system sample for verification purposes and finish texture approval.
- C. Contractor Experience: The concrete floor sealing specialist shall furnish a list of three (3) projects using either specified material or another material pre-approved for this project that they have installed during the last five years. Information shall include: project name, square footage, contract name with owner's address and phone number. Also, the concrete floor sealer specialist shall furnish resumes detailing the experience of key project personnel including supervisors and technicians.
- D. Submit in accordance with Division 01 requirements.
- E. Submit warranty as specified herein.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Obtain concrete floor sealer materials from a single manufacturer.
- B. Applicator's Qualifications: Installation shall be performed by an concrete floor sealer specialist with skilled mechanics having not less than three (3) years of satisfactory experience in the application of the type and complexity of system as specified in this section. The concrete floor sealer specialist shall be approved in writing by the manufacturer of the concrete floor sealer as specified herein.
- C. All products shall be V.O.C. compliant and shall meet the new EPA requirements effective September 13, 1999.



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- D. All concrete surfaces scheduled to receive the concrete floor sealer shall be free from curing membranes or bond breakers and clear of any debris or construction latents directly prior to application of concrete floor sealer.

1.4 MATERIAL DELIVERY, HANDLING AND STORAGE

- A. Primary system materials shall be delivered in the manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:
 - 1. Product Name.
 - 2. Manufacturer's Name.
 - 3. Component designation (A or B, etc.).
 - 4. Ratio of component mixture.
- B. Provide equipment and personnel to handle the materials by methods which prevent damage.
- C. The concrete floor sealer specialist shall promptly inspect all direct jobsite deliveries to assure that quantities are correct and that materials comply with requirements and are not damaged.
- D. The concrete floor sealer specialist shall be responsible for all materials furnished by him, and he shall replace, at his own expense, all such material that is found to be defective in manufacturing or that has become damaged in transit, handling or storage.
- E. Store materials in strict accordance with manufacturer's instructions, with seals and labels intact and legible.
- F. Proper concrete protection from staining must be observed. Steel must not be placed on slab to avoid staining. Diaper hydraulic powered equipment to avoid oil and gasoline staining. Pipe cutting machines shall not be used on the concrete slabs where the clear sealers are scheduled. Any rubber tired traffic shall be kept at a minimum and shall be protected with drop cloths.

1.5 JOB CONDITIONS

- A. The concrete floor sealer specialist shall visit the jobsite prior to beginning the application of the concrete floor sealer to evaluate substrate condition, including concrete moisture content, and the extent of repairs required, if any. Concrete floors shall be tested to verify that the moisture content of the substrate does not exceed that as recommended by the manufacturer.
- B. The concrete floor sealer specialist should exercise care during surface preparation and system application to protect surrounding substrates and surfaces, as well as in place equipment. The concrete floor sealer specialist shall use his discretion as to the physical means used for preparation and protection. Any costs incurred for resultant damage from negligence or inadequate protection shall be the sole responsibility of the concrete floor sealer specialist.



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- C. Job area shall be free of other trades during floor installation, and for a period of 24 hours upon completion.
- D. Where natural ventilation is inadequate, provide ventilation by use of fans or other devices.
- E. Do not install at temperatures below 35 degrees F.

1.6 WARRANTY

- A. The concrete floor sealer specialist shall furnish the manufacturer's standard warranty of the concrete floor sealer for a period of twenty (20) years after the Date of Substantial Completion.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Basis of Design: "Ashford Formula," Curecrete Chemical Company, Springville, Utah; www.ashfordformula.com.
 - 1. Products of the following manufacturers are approved provided compliance with all technical requirements as specified herein:
 - a. "Seal Hard," L & M Construction Chemicals, Omaha, Nebraska; www.lmcc.com

2.2 MATERIALS

- A. Colorless, transparent, penetrating liquid.
- B. Contains no silicone.
- C. Highly resistant to oils, greases and acids.
- D. Technical Properties:
 - 1. Abrasion – Taber abrasion test: 30.7% increase in abrasion resistance.
 - 2. Bonding – per ASTM D3359, latest edition: 17% increase in epoxy adhesion. No change for polyurethane adhesion.
 - 3. Curing – 94% greater moisture loss from untreated samples during critical, initial 24 hour curing period.
 - 4. Hardening – per ASTM C42, latest edition: 40% increase in compressive strength at 7 days, 38% increase at 28 days over untreated samples. ASTM C805, latest edition, Schmidt hammer: 13.3% increased impact resistance.
 - 5. Permeability – The seepage rate using a 7 inch head of water on a 4.91 square inch area treated was 0.0083cc per hour.
 - 6. Weathering – per ASTM G23, latest edition: ultraviolet light and water spray exposure had no adverse effect.



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- E. Non-toxic, non-combustible, and non-flammable. Shall not harm lungs or hands. Shall comply with all V.O.C. regulations in effect at the time of manufacture.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine concrete after wet curing a minimum of three (3) days and removal of any curing covering. Coordinate with Section 03 30 00, Cast-In-Place Concrete. Notify the Architect of any deficiencies prior to proceeding with the Work of this Section.

3.2 INSTALLATION

- A. Upon removal of curing cover, mechanically clean the concrete to remove contaminants, form oils, bond breakers, and staining from the wet cure operation. All cleaning compounds shall be removed in their entirety and the concrete surface shall be neutralized.
- B. Avoid contact with glass, aluminum, plant life, asphaltic concrete and finished surfaces.
- C. First Application:
 - 1. As soon as possible after curing cover removal, spray product with a low pressure sprayer at a rate of 200-250 square feet per gallon.
 - 2. Keep the entire surface wet for 30 to 40 minutes by re-spraying dry spots or moving material from wet areas to dry areas with nylon push brooms.
 - 3. When the wet product becomes slippery underfoot, lightly sprinkle the surface with water to aid penetration and prevent surface drying.
 - 4. As the product begins to dry into the surface and again becomes slippery underfoot, flush the surface with water and squeegee the surface dry, removing all excess product, water, alkali and other impurities from the surface.
- D. NOTE: Before turning the facility over to the Owner, aggressively soap and water clean the concrete to remove construction contaminants and prepare the floor for the final application.
- E. Finish Application:
 - 1. Apply sealer with a low pressure sprayer or drop sealer with a floor scrubbing machine at 50 – 600 square feet per gallon.
 - 2. Lambs wool or fine bristle broom the sealer evenly across the concrete surface or use a squeegee on the floor scrubbing machine to evenly spread a thin film.
- F. Final Polishing
 - 1. It is necessary that the floor sealer be applied adequately if the sheen is to come up. Therefore, if the floor does not shine when polished/burnished, the floor may need to have another standard treatment application of the concrete floor sealer specified herein.



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2. Prior to final inspection and date of substantial completion, all exposed concrete floors sealed with products specified in this Section, shall be polished as follows:
 - a. Step 1: Use high-speed propane polishing/burnishing equipped with an abrasive 3M Black stripping pad.
 - b. Step 2: "Buff" the surface by working the machine side to side and back to back so as to create a wax-like sheen.
 - c. Step 3: Repeat step 2 utilizing a 3M Red pad to increase the intensity of the sheen.

- G. Provide all items and accessories as required for a complete installation in every respect.

END OF SECTION 03 35 00



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Division 04

Masonry



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SECTION 04 05 13
MORTAR

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies the mortar for unit masonry materials specified in the following Sections:
 - 1. Concrete masonry units, Section 04 20 00

1.2 SUBMITTALS

- A. Submit in accordance with Division 01 requirements.
- B. All required submittals shall be approved prior to the start of masonry construction.
- C. Approved manufacturer's published complete product data for proposed prepared masonry cement.
- D. Proposed mortar mix design(s) including complete identities and proportions of ingredients as well as adherence to standards where so specified.
- E. Test results from mortar cube breaks reporting compressive strength of mortar to be used.
- F. Contractor shall receive from supplier and provide to Architect certification, in writing, that materials meet requirements of ASTM C1142, latest edition.
- G. Samples for Verification: Accessories embedded in the masonry.
- H. Submit mortar test reports indicating mortar property requirements in accordance with ASTM C270, latest edition.

1.3 QUALITY ASSURANCE

- A. Codes and Specifications: Comply with the provisions of the latest editions for the following codes, specifications, and standards.
 - 1. ACI 530/ASCE 5 Building Code Requirements for Masonry Structures.
 - 2. ACI 530.1/ASCE 6 Specifications for Masonry Structures.
 - 3. NCMA-TEK 20B Mortars for Concrete Masonry.
 - 4. ASTM C144, Aggregate for Masonry Mortar.
 - 5. ASTM C150, Portland Cement
 - 6. ASTM C207, Hydrated Lime for Masonry Purposes.
 - 7. ASTM C270, Mortar for Unit Masonry.
 - 8. ASTM E514, Standard Test Method for Water Penetration and Leakage Through Masonry.



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- B. Field Quality Control.
 - 1. Materials may require testing and re-testing, as directed by the Architect, during the progress of the Work. Allow free access to material stockpiles and facilities. Tests shall be performed at the Contractor's expense.
 - 2. Do not change source or brands of masonry mortar material during the course of the Work. If changes become necessary, resubmit data for material being changed and for tests of materials in which the changed material is and ingredient.
 - 3. Mortar properties shall comply with ASTM C270, latest edition.
- C. Submit a copy of certification that the integral water repellent admixture for the mortar was added in amounts according to the manufacturers written installation instructions.
- D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

1.4 MATERIAL STORAGE, DELIVERY, AND HANDLING

- A. Store mortar materials off the ground, under cover, using tarpaulins, felt paper, or polyethylene sheets in a dry location.
- B. Deliver and store manufactured products in original unopened containers.
- C. Store cementitious ingredients in weather-tight enclosures and protect against contamination. Store on platforms, under cover, and in a dry location.
- D. Stock piles and handle aggregates to prevent contamination from foreign materials.
- E. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

1.5 TESTS FOR MORTAR

- A. Test for compressive strength by the methods of sampling and testing of ASTM C109 and ASTM C780, latest editions.
 - 1. Provide a minimum of one set of cubes of testing per 5,000 sq. ft. of masonry wall construction, maximum.
- B. Submit written reports for each material sampled and tested. Provide the project identification name and number, date of report, name of Contractor, name of testing service, source of aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.



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- C. If the compressive strength tests fail to meet the minimum requirements specified, the mortar represented by such tests will be considered deficient in strength.
- D. Deficient mortar shall be removed and replaced by the Contractor without additional cost to the Owner.

1.6 PROJECT CONDITIONS

- A. To assure mortar temperatures between 40 degrees F and 120 degrees F until used heat mixing water or aggregates when air temperature is between 32 degrees F and 40 degrees F. When the air temperature is between 25 degrees F and 32 degrees F, heat both water and aggregate.
- B. Produce subsequent mortar batches within plus or minus 10 degrees of first batch.
- C. Do not heat water or sand above 160 degrees F.
- D. Stain Prevention: Prevent mortar and soil from staining the face of masonry to be left exposed or painted. Immediately remove mortar, and soil that come in contact with such masonry.
 - 1. Protect sills, ledges, and projections from mortar droppings.
 - 2. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 3. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. To assure mortar temperatures between 40 degrees F and 120 degrees F until used heat mixing water or aggregates when air temperature is between 32 degrees F and 40 degrees F. When the air temperature is between 25 degrees F and 32 degrees F, heat both water and aggregate.
- B. Produce subsequent mortar batches within plus or minus 10 degrees of first batch.
- C. Do not heat water or sand above 160 degrees F.

PART 2 - PRODUCTS

- 2.1 MATERIALS - Comply with the provisions of the latest editions for the following codes, specifications, and standards:
 - A. Portland Cement: ASTM C150, Type I, non-staining, without air entertainment and of natural color or white, to produce the required color of mortar or grout.
 - B. Masonry Cement: Current ASTM C91, non-staining, with 12 to 22 percent air content by volume.



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- C. Hydrated Lime: ASTM C207, Type S.
- D. Aggregates: ASTM C144, except for joint less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
- E. Water: Clean, free of deleterious materials which would impair strength or bond.
- F. Ready Mixed Mortar: ASTM C270, latest edition, Standard Specification for ready mixed mortar for unit masonry.

2.2 MORTAR MIXES

- A. Do not lower the freezing point of mortar by use of admixture or anti-freeze agents.
 - 1. Do not use calcium chloride in mortar.
- B. Mortar for Unit Masonry: Comply with ASTM C270, latest edition, Property Specification, Proportion Specifications, or ASTM C1142, latest edition.
 - 1. Type M: 2500 psi average compressive strength at 28 days for masonry in contact with the earth.
 - 2. Type S: 1800 psi average compressive strength at 28 days for other masonry conditions.
- C. Use gray (non-colored) mortar for interior and non-exposed concrete block masonry.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to Section 04 20 00, Unit Masonry.

END OF SECTION 04 05 13



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SECTION 04 05 16
MASONRY GROUT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies the masonry grout for unit masonry materials specified in the following Sections:
 - 1. Concrete masonry units, Section 04 20 00
- B. The types of masonry grout required include the following:
 - 1. Fine grout.
 - 2. Coarse grout.
- C. This Section also specifies the grout for use in hollow metal frames. Install in all hollow metal frames installed in concrete and CMU walls, interior and exterior.

1.2 SUBMITTALS

- A. Submit in accordance with Division 01 requirements.
- B. Approved manufacturer's published complete product data for:
 - 1. Proposed Portland cement.
- C. Proposed grout mix designs for both fine and coarse grouts including complete identities and proportions of ingredients as well as adherence to standards where so specified. All grout shall be plant-mix.
- D. Compression test results from an independent certified testing laboratory from grout samples made from the proposed grout mix design. Test reports may be from previous Projects within the previous 6 months.
- E. Submit grout test reports indicating grout compressive strength property requirements in accordance with ASTM C476, latest edition.

1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the provisions of the latest edition for following codes, specifications, and standards, except as otherwise shown or specified:
 - 1. ACI 530/ASCE 5 Building Code Requirements for Masonry Structures.
 - 2. ACI 530.1/ASCE 6 Specifications for Masonry Structures.
 - 3. NCMA-TEK 23-A Grouting for Concrete Masonry Walls.
- B. Field Quality Control
 - 1. Materials may require testing and re-testing, as directed by the Architect, during



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the progress of the Work. Allow free access to material stockpiles and facilities. Tests will be performed at the Contractor's expense.

2. Do not change source or brand of masonry grout materials during the course of the Work. If changes become necessary, resubmit data for material being changed and for tests of materials in which the changed material is an ingredient.
 3. Provide grout in mock-ups as required in Section 04 20 00, Unit Masonry.
- C. Provide grout in mock-ups as required in Section 04 20 00, Unit Masonry.

1.4 MATERIAL STORAGE

- A. Store grout materials off the ground, under cover, using tarpaulin, felt paper, or polyethylene sheets and in a dry location.

1.5 TESTS FOR GROUT

- A. Gout for filling reinforced or un-reinforced concrete masonry cores or brick cavities test for compressive strength by methods as described in Section 04 05 16.
1. Provide a minimum of one set of 3 test specimens for testing per 5000 square feet of masonry wall construction, maximum.
- B. Submit written reports for each material sampled and tested. Provide the project identification name and number, date of report, name of Contractor, name of testing service, source of aggregates, material manufacturer and brand name for manufactured materials, valves specified in the referenced specification for each material, specific location where material represented by sample is used and test results. Indicate whether or not material is acceptable for intended use.
- C. If the compressive strength tests fail to meet the minimum requirements specified, the grout represented by such tests shall be considered deficient in strength.
- D. Deficient grout shall be removed and replaced by the Contractor without additional cost to the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Masonry Cement: ASTM C 91.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate for Grout: ASTM C 144, except for joints less than 1/4 inch use aggregate graded with 100 percent passing the No. 16 sieve.
1. White Mortar Aggregates: Natural white sand or ground white stone



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- D. Water: Clean and potable.

2.2 GROUT MIXES

- A. Do not lower the freezing point of grout by use of admixtures or anti-freeze agents.
1. Do not use calcium chloride in grout.
- B. Grout for Unit Masonry and Hollow Metal Frames: Comply with ASTM C476, latest edition.
1. Fine Grout: 2000 psi average compressive strength at 28 days for 6 inches and smaller hollow concrete masonry units and between 2 wythes of masonry where space is less than 2 inches in width.
 2. Coarse Grout: 2000 psi average compressive strength at 28 days for 8 inches and larger hollow concrete masonry units and between 2 wythes of masonry where space is 2 inches in width or wider.
 3. Fine grout shall be used in hollow metal frames.
- C. Grout Proportions (by volume): Comply with Table 1, ASTM C476, latest edition.
1. Fine Grout: 1 part Portland cement, 0 to 1/10 part hydrated lime or lime putty, 2 ¼ to 3 parts fine aggregate.
 2. Coarse Grout: 1 part Portland cement, 0 to 1/10 part hydrated lime or lime putty, 2 ¼ parts fine aggregate, 1 to 2 parts coarse aggregate.
- D. Grout Slump: Properly proportioned grout shall have a slump of 8 to 11 inches as measured according to ASTM C 143.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to Section 04 20 00, Unit Masonry.
- B. Install fine grout in all steel frames installed in concrete and CMU walls. Do not install until asphaltic emulsion coating is installed in frames and has dried. Refer to Section 08 11 00 for additional requirements.

3.2 SAMPLING AND TESTING

- A. Sampling and Testing of Grout: NCMA-TEK 107, latest edition.
1. Place a piece of wood 1-5/8 inch thick and 3 inches by 3 inches on a level surface. Four masonry units with permeable paper, such as absorptive paper toweling, taped to one face shell are placed around the wood block to form the mold. The resulting mold is approximately 3 inches square by 6 inches high. Pour grout into the mold in two layers. Rod each layer 25 times with a 1 x 2 wood



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puddling stick to eliminate air bubbles. Puddle the bottom layer throughout its depth. Distribute the strokes uniformly over the cross-section of the mold. For the upper layer, allow the stick to penetrate about ½ inch into the underlying layer. After the second lift has been puddled, level the top of the prism with a trowel and immediately cover the prism with wet burlap or similar material to keep it damp. Protect the prisms against extreme changes in temperature, and after 48 hours, remove the masonry units and carefully pack the samples for transport to the laboratory where they will be stored in a moist room until tested.

2. Cap the specimens in accordance with the applicable provisions of "Method of Capping Cylindrical Concrete Specimens," ASTM C617, latest edition. The sample should be tested in a damp condition in accordance with the applicable provisions of ASTM C39 "Methods of Test Compressive Strength of Molded Concrete Cylinders", latest edition.
3. Three test samples shall be made and tested for each type of grout to be used in the work.

END OF SECTION 04 05 16



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SECTION 04 05 23
MASONRY ACCESSORIES

PART 1- GENERAL

1.1 SUMMARY

- A. This Section specifies the masonry accessories for unit masonry materials specified in the following Sections:
 - 1. Concrete masonry units, Section 04 20 00.
- B. The types of masonry accessories required include, but may not be limited to, the following:
 - 1. Continuous horizontal wire reinforcing and ties.
 - 2. Reinforcing bars in masonry lintel block and hollow metal door frame heads.
 - 3. Vertical bars for concrete masonry.
 - 4. Grouted anchor bolts.
 - 5. Preformed expansion joint material.
 - 6. Caging devices and centering clips

1.2 SUBMITTALS

- A. Submit in accordance with Division 01 requirements.
- B. All submittals shall be approved prior to the start of masonry construction.
- C. Approved manufacturer's published, complete product data, with particular items to be provided, clearly marked thereon, for:
 - 1. Proposed masonry joint reinforcement.
- D. Complete shop drawings by approved fabricator for:
 - 1. Proposed masonry lintel and wall reinforcement. Shop drawings shall conform to Section 03 20 00 requirements.
 - 2. Show reinforcing steel in masonry walls in elevation.
- E. Submit samples of all masonry accessories for verification.

1.3 QUALITY ASSURANCE

- A. Provide accessories in mock-ups as required in Section 04 20 00, Unit Masonry.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.



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load-bearing walls at 90 degrees shall be wire mesh wall ties made of 1/2 inch mesh by 16 gauge hot dip mill-galvanized wire, 1 inch less in width than width of wall.

- D. Caging Devices and Centering Clips
 - 1. In hollow concrete masonry cores or brick cavities to be reinforced with vertical reinforcing steel bars and filled with grout, provide 9 gauge galvanized steel caging devices. The following products are acceptable:
 - a. Rebar Positioner AA239, AA Wire Products Company, Chicago, IL
 - b. Rebar Positioner 3400, Masonry Reinforcing of America, Charlotte, NC
 - c. Spider Type Rebar Positioner, National Wire Products Industries, Baltimore, MD
- E. Grouted Anchor Bolts
 - 1. In hollow concrete masonry units: HILTI HIT C20 Renovation Anchors, Hilti, Inc., Tulsa, Oklahoma; <http://www.us.hilti.com>; or Architect approved equal.
 - 2. In solid or grouted masonry units: HILTI HIT HY150 Adhesive Anchor System, Hilti, Inc., Tulsa, Oklahoma; <http://www.us.hilti.com>; or Architect approved equal.
- F. Preformed Expansion Joint Material: Provide closed cell polyethylene expansion joints equal to "Expansion-Joint Filler" as manufactured by BASF The Chemical Company; www.buildingsystems.basf.com or Architect approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. See Section 04 20 00, Unit Masonry, for installation of masonry accessories specified under this Section.

END OF SECTION 04 05 23



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SECTION 04 20 00
UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide labor, materials, and equipment necessary for complete installation of unit masonry as shown on the Drawings and specified herein.
- B. Work installed under this Section, but materials or products furnished under the following Divisions or Sections:
 - 1. Masonry mortar furnished under the Work of Section 04 05 13.
 - 2. Masonry grout furnished under the Work of Section 04 05 16.
 - 3. Masonry accessories furnished under the Work of Section 04 05 23.
 - 4. Anchor bolts, steel plates, and steel lintels; refer to Structural Drawings.
 - 5. Wood blocking and nailing blocks in masonry construction; refer to Section 06 10 00.
- C. Cooperate with other trades requiring items of equipment or services to be installed within or in conjunction with Unit Masonry Work.
- D. Products installed, but not furnished, under this Section include the following:
 - 1. Hollow-metal frames in unit masonry openings, furnished under Division 8 Section "Steel Doors and Frames."

1.2 SUBMITTALS

- A. Submit in accordance with Division 1 requirements.
- B. Upon regular presentation within past 6 months of representative units by approved manufacturer, a test report from an independent laboratory showing resultant weight, compressive strength (based on net area), and water absorption properties, as well as adherances to standards where so specified, for:

Name of Manufacturer
Date of Manufacture of Test Specimen
Dimension Measurements (in.)
Calculated Gross Area (sq.in.)
Calculated Net Area (sq.in.)
Total Load (lbs.)
Net Unit Load (psi)
Sample Weight (lbs.)
Dry Weight (lbs.)
Wet Weight (lbs.)
Immersed Weight (lbs.)
Density (pcf)
Moisture Content (%)
Absorption (%)



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- C. Letter from approved manufacturer certifying that provided units will meet or exceed qualities of tested representative units for:
 - 1. Each proposed type of concrete masonry unit.
- D. A test report from an independent testing laboratory showing compressive strength of concrete masonry prisms constructed from the concrete masonry units and mortar to be used in the masonry work for:
 - 1. Each proposed type and size of concrete masonry unit as required on the Reinforced Masonry Plans in the Drawings.
- E. Installer's examination report.
- F. Product Data: For each different masonry unit, accessory, and other manufactured product specified.
- G. Shop Drawings: Show fabrication and installation details for the following:
 - 1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement", latest edition. Show elevations of reinforced walls.
- H. Samples for Verification: Any accessories embedded in the masonry.
- I. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
 - 1. Each type of masonry unit required.
 - 2. Include test data, measurements, and calculations establishing net-area compressive strength of masonry units.
 - 3. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
 - 4. Each combination of masonry unit type and mortar type. Include statement of net-area compressive strength of masonry units, mortar type, and net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602, latest editions.
 - 5. Each material and grade indicated for reinforcing bars.
 - 6. Each type and size of joint reinforcement.
 - 7. Each type and size of anchor, tie, and metal accessory.

1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the provisions of the latest editions for the following codes, specifications, and standards, except as otherwise shown or specified:
 - 1. ACI 530/ASCE 5 Building Code Requirements For Masonry Structures.
 - 2. ACI 530.1/ASCE 6 Specifications for Masonry Structures.
 - 3. NCMA-TEK 70A Concrete Masonry Prism Strength.



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4. NCMA-TEK 132
 5. NCMA-TEK 23A Grouting for Concrete Masonry Walls.
 6. NCMA-TEK 65 Field Inspection of Engineered Concrete Masonry.
 7. ASTM C140 Standard Methods of Sampling and Testing Concrete Masonry Units.
 8. Comply with ALL NCMA-TEK Standards.
- B. Changes in the source or brand of masonry materials during construction will require resubmission and re-testing at the Contractor's expense.
- C. Concrete Masonry Inspection
1. Refer to Division 01 for additional requirements.
 - a. Masonry inspection is required for those masonry elements where it is imperative that construction produces elements which can attain high design strengths. These masonry elements include, but are not limited to, grout filled CMU walls, CMU bearing walls, and grout filled and vertically reinforced CMU walls, and other walls as may be indicated on the Drawings.
 - b. The Contractor responsible for this Section 04 20 00 of the Work, is responsible for the masonry inspections. Masonry inspections shall be by an independent laboratory as specified in Division 1. Submit reports as specified herein.
 2. Submit written reports for each section of wall inspected to include:
 - a. Project identification name and number.
 - b. Name of Masonry Contractor.
 - c. Name of inspecting service.
 - d. Date of report.
 - e. Specific location of work inspected.
 - f. Horizontal joint reinforcing size, type, spacing, and lap.
 - g. Preparation of cores and cavities to be grouted. Inspect every core and cavity.
 - h. Vertical reinforcing centering clip size, type, spacing, and proper alignment.
 - i. Size spacing and lap of vertical reinforcing and installation in centering clips.
 - j. Installation and vibration of grout in cores and cavities.
 - k. Remarks as to general conditions pertinent to the strength and quality of the masonry work.
 3. Inspection shall use NCMA-TEK 65 Field Inspection of Engineered Concrete Masonry and NCMA-TEK 132 Inspector's Guide for Concrete Masonry Construction as guidelines.
 4. The masonry inspection agency shall be selected prior to the pre-masonry conference and shall have the inspector who will inspect this project attend the conference.
 5. The contractor for the work of this Section shall be responsible for the masonry inspection to be performed by an independent testing laboratory.



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- D. Definitions:
 - 1. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.
 - 2. CMU: Concrete masonry unit.
- E. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry materials to project in undamaged condition.
- B. Store and handle masonry units off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.
- C. Store cementitious materials off the ground, under cover, and in dry location.
- D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- E. Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.

1.5 TESTS OF CONCRETE MASONRY PRISMS

- A. For grout filled and reinforced or un-reinforced concrete masonry or brick masonry wall construction tests for the compressive strength of prisms as described in ASTM E 447, latest edition.
 - 1. Provide a minimum of one set of 3 masonry prisms for testing per each 5000 square feet of masonry wall construction as required on the Structural Masonry Plan in the Drawings.
- B. Submit written reports for each prism tested Provide the project identification name and number, date of report, name of Contractor, name of Testing service, name of material suppliers, specific location where masonry represented by the prism is used, test results, and values specified in the referenced specification. Indicate whether or not tested prism is acceptable for intended use.
- C. If the compressive strength tests fail to meet the minimum requirements specified, the concrete masonry represented by such tests shall be considered deficient in strength.
- D. Deficient masonry construction shall be removed and replaced by the Contractor without additional cost to the Owner. In lieu of removal and replacement, additional cores may be grouted as required and directed by the Architect without additional cost to the Owner.



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1.6 PROJECT CONDITIONS

- A. Protect partially complete masonry against weather, when Work is not in progress, by covering top of walls with strong, waterproof, non-staining membrane. Extend membrane at least 2 foot down both sides of walls and anchor securely in place.
- B. Protect partially complete masonry walls against wind damage by bracing as required until support of walls is integral with the building structure.
- C. Protect masonry against freezing when the temperature of the surrounding air is 40 degrees F and falling. Heat materials and provide temporary protection of complete portions of masonry work. Comply with the requirements of the governing code and with the "Construction and Protection Recommendations for Cold Weather Masonry Construction" of the Technical Notes of Brick and Tile Construction by the Brick Institute of America (BIA).
- D. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately any grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from mortar droppings.
- E. Hot-Weather Construction: Comply with referenced unit masonry standard.

1.7 MASONRY INSPECTION

- A. The Contractor for the Work of this Section is responsible for all masonry inspections and reports as specified herein.
- B. Provide masonry construction inspection of concrete masonry walls indicated as requiring inspection on the Masonry Plans to insure that masonry construction is in conformance with the Contract Documents. Masonry inspection is required for those masonry elements which must be constructed to attain high design strengths, such as, but not limited to, vertically reinforced grouted CMU walls, grouted CMU wall, and load-bearing CMU walls.
- C. Qualification of Inspection Agency: Refer to Division 1 requirements.
- D. Inspection shall use NCMA-TEK 65 Field Inspection of Engineered Concrete Masonry and NCMA-TEK 132 Inspector's Guide for Concrete Masonry Construction as guidelines.
- E. The individual or individuals who will perform the masonry inspection shall be present for the Pre-masonry Conference.



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- F. The masonry inspector shall prepare a written report or reports for each day of inspection.
- G. The masonry inspector shall be present and observe all grouting operations in walls requiring inspection. The masonry inspector shall be present at the project site within sufficient time, in advance of grouting operations, to inspect the construction to insure its conformance to the contract Documents and that grouting may proceed. Periodically, the masonry inspector shall be present during the placing of masonry units and reinforcement. No grouting shall be permitted unless the masonry inspector is present and has indicated that the masonry construction is properly prepared for the grouting operation.

1.8 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following net-area compressive strengths (f'm) at 28 days. Determine compressive strength of masonry from net-area compressive strengths of masonry units and mortar types according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602, latest edition.
- B. Provide unit masonry that develops the following net-area compressive strengths (f'm) at 28 days. Determine compressive strength of masonry by testing masonry prisms according to ASTM C 1314, latest edition.
 - 1. For Concrete Unit Masonry: f'm = 1500 psi.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Comply with referenced unit masonry standard and other requirements specified in this Section applicable to each material indicated.

2.2 MASONRY UNITS

- A. Obtain masonry units from one manufacturer for uniform texture and color for each kind required, for each continuous area and visually related areas.
- B. Concrete Masonry Units (CMU) (NOTE: All CMU on this PROJECT to have minimum compressive strength of 1900 psi on net area.)
 - 1. Manufacturer: Shall be member of the National Concrete Masonry Association.
 - 2. Size: Manufacturer's standard units with face dimensions of 15-5/8 by 7-5/8 inches (actual).
 - 3. Special Shapes: Provide, where shown and where required, lintels, inside and outside corners, jambs, sash, control joints, headers, bond beams, bullnoses, and other special conditions.
 - a. Provide bullnose corners at all exposed external corners (except at heads), and sills.



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4. Hollow Load-Bearing (HL) CMU: Provide units complying with ASTM C90, latest edition, 2N Class Designation for the aggregates, with a minimum compressive strength of 1900 psi on the net section.
5. Normal Weight Units: ASTM C33, latest edition, concrete aggregates for a dry net weight of not less than 125 pounds per cu. ft. Strength shall be as indicated above.
6. Curing: Cure units in a non-moisture controlled atmosphere to comply with ASTM C90, latest edition, Type II.
7. Exposed Face: Manufacturer's standard color and texture. Smooth face.
8. All exterior CMU, fluted and smooth, shall contain integral color from L.M. Scofield, as selected by Architect and integral water repellent additive, "Dry-Block" by W.R. Grace; or Architect approved equal. Integral water repellent additive shall be as specified herein. 15. Provide masonry lintels at all openings greater than 1'-0" in width that occur in CMU walls.

2.3 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2-cup dry measure) and laundry detergent (1/2-cup dry measure) dissolved in one gallon of water.

2.4 SOURCE QUALITY CONTROL

- A. Concrete Masonry Unit Tests: For each type, class, and grade of concrete masonry unit indicated, units will be tested by qualified independent testing laboratory for strength, absorption, and moisture content per ASTM C 140, latest edition.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.
 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of unit masonry.
- B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with referenced unit masonry standard and other requirements indicated applicable to each type of installation included in Project.



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- B. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.
- C. Build chases and recesses as shown or required to accommodate items specified in this and other Sections of the Specifications. Provide not less than 8 inches of masonry between chase or recess and jamb of openings and between adjacent chases and recesses.
- D. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.
- E. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting where possible.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of new masonry with existing masonry.

3.3 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4" in 10", or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story or 20' maximum, nor 1/2" in 40' or more. For vertical alignment of head joints do not exceed plus or minus 1/4" in 10', 1/2" maximum.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum, nor 1/2" in 40' or more. For top surface of bearing walls do not exceed 1/8" between adjacent floor elements in 10' or 1/16" within width of a single unit.
- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2" in any bay or 20' maximum, nor 3/4" in 40' or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thicknesses of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".
- E. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8", with a maximum thickness limited to 1/2". Do not exceed head joint thickness indicated by more than plus or minus 1/8"

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets.



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Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.

- B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
 - 1. For the first and second block courses above and below apertures, run reinforcing continuous or extend two feet back from aperture edge. Refer to notes on Structural drawings.
- C. Lay-up walls plumb and true and with courses level, accurately spaced and coordinated with other work. Do not wedge partitions tight against structural ceiling or beams, but provide a caulk or insulation filled joint between top of masonry and the structural roof deck, structural steel framing or structural floor deck. Stop masonry a minimum of 1/2 inch from vertical, horizontal and sloped steel surfaces.
- D. Pattern Bond: Lay concrete masonry units in running bond.
- E. Weight Requirements for CMU Units: Normal Weight: All CMU.
- F. Stopping and Resuming Work: In each course, rack back 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly (if required), and remove loose masonry units and mortar prior to laying fresh masonry.
- G. Built-In Work: As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
 - 1. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
 - 2. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
 - 3. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
 - 4. Install adjustable hollow metal frame anchors, locating anchors on jambs in horizontal bed courses near the top and bottom of each frame and at intermediate points not over 24 inches apart.
 - 5. Fill jambs and heads of all hollow metal door and window frames installed in CMU or concrete walls solid with grout.
 - 6. Rake joints around exterior side of exterior hollow metal door frames for sealant under Division 07.
 - 7. Where hollow metal frames do not wrap around masonry jambs and heads, rub exposed corners of block to remove sharp, irregular edges.
 - 8. Wash brick veneer prior to installing aluminum window units.
- H. Intersecting Masonry Walls: Where interior nonload-bearing masonry partition or wall intersects an exterior or interior load-bearing masonry wall at 90 degrees, stop horizontal joint reinforcing in interior partition 4 inches short of intersection. Horizontal joint reinforcing in exterior or interior load-bearing wall shall run continuous. In the same courses as horizontal reinforcing, install wire mesh extending 8 inches minimum into



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interior partition and projecting into the exterior wall to within 2 inches of exterior face of wall. Install wire mesh reinforcing in horizontal joints 16 inches o.c. vertically.

- I. Grout masonry walls where indicated on drawings.

3.5 MORTAR BEDDING AND JOINTING

- A. Mix mortar ingredients for a minimum of 5 minutes in a mechanical batch mixer. Use water clear and free of deleterious materials which would impair the work. Each mortar batch is allowed only one retempering. Do not use mortar which has begun to set after the first re-tempering or if more than 2-1/2 hours has elapsed since initial mixing.
- B. Lay brick and other solid masonry units with completely filled bed and head joint; butter ends with sufficient mortar to fill head joints and shove into place. Butter ends of brick in hand and in the wall at closures. Do not slush head joints.
- C. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells; also bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or to be filled with concrete or grout.
- D. Joints: Maintain joint widths shown, except for minor variations required, to maintain joint alignment. Lay walls with 3/8 inch joints. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials. For exposed masonry, provide joints as follows:
 1. All Exposed Joints: Concave tooled.
 2. All Concealed Joints: Struck flush.
- E. Remove masonry units disturbed after laying; clean and relay in fresh mortar. Do not pound corners at jams to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar, and reset in fresh mortar.

3.6 HORIZONTAL JOINT REINFORCEMENT

- A. Provide continuous horizontal joint reinforcing as shown and specified. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls and 1/2 inch at other locations. Lap reinforcement a minimum of 6 inches at ends of units. Do not bridge control and expansion joints with reinforcing. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturers for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.
- B. Space continuous horizontal reinforcing as specified in Section 04 05 23.
- C. Reinforce masonry openings greater than 1 foot wide, with horizontal joint reinforcing placed in 2 horizontal joints approximately 8 inches apart, both immediately above the lintel and immediately below the sill. Extend reinforcing a minimum of 2 foot beyond jambs of the opening except at control joints.



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- D. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- E. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 LINTELS

- A. Install steel lintels where indicated and/or as required for masonry openings.
- B. Provide masonry lintels where shown and wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide formed-in-place masonry lintels. Temporarily support formed-in-place lintels.
 - 1. For hollow concrete masonry unit walls, use specially formed bond beam units with reinforcement bars placed as indicated and filled with coarse grout.
- C. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.
- D. For all openings in non-load bearing CMU or brick, with lintels not shown on Structural Drawings, provide the following lintels:
 - 1. CMU Lintel: Use bond beam lintel block. Fill with concrete or grout. All lintel block shall be 8" nominal height by the wall thickness. Extend lintel 24" into wall on each side of opening. Concrete or grout shall have a minimum of $f'c = 4000$ psi. Provide 2 - #5 rebar top and bottom. Lintel shall be shored in the center for 28 days. Maximum lintel clear span = 10'-0".

3.8 INSTALLATION OF REINFORCED UNIT MASONRY

- A. Install reinforced unit masonry to comply with requirements of referenced unit masonry standard.
- B. Temporary Formwork: Construct formwork and shores to support reinforced masonry elements during construction.
 - 1. Construct formwork to conform to shape, line, and dimensions shown. Make sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
- C. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
- D. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.



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3.9 VERTICAL REINFORCED CONCRETE MASONRY

- A. Where grout filled or steel reinforced concrete block masonry foundations or masonry walls are called for on the Drawings, they shall be reinforced and grouted in accordance with the Drawings and details. All cells to be grouted shall be clean and free of mortar protrusions and droppings in the cells.
- B. The low-lift grouting procedure shall be used as described in the Drawings and in NCMA-TEK 23A Grouting for Masonry Walls. Maximum height of grouting shall be 4 feet.
- C. 3000 psi grout (slump 8-9 inches) shall be installed in the block cavities so as to completely fill each cavity with homogenous grout, extending from the lowest course to the top of the reinforced portion of the foundation or wall. Concrete or mortar shall not be used as grout for CMU.
- D. After the grout is placed, it shall be consolidated with a small vibrator. The top of the grout filling shall be stopped 1-1/2 inches below the top of the concrete block, except for the top course in the wall where the grout shall be struck flush with the top. If highly absorptive masonry units are used, the grout shall be re-vibrated after it has begun to stiffen.
- E. Aggregate used in the grout shall be small enough not to interfere with placement and plasticity. Water-cement ratio shall be maintained so compressive strength at 28 days shall not be less than 3000 lbs. per sq.in.
- F. Caging devices and centering clips shall be spaced vertically such that every section of vertical reinforcing steel bar is restrained by 2 clips or devices, one near its top and one near its bottom.

3.10 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units and in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings, and adjacent construction to provide a neat, uniform appearance, prepared for application of sealants.
- C. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by



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- covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
4. Wet wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
 5. Clean brick by means of bucket and brush hand-cleaning method described in BIA "Technical Note No. 20 Revised" using the following masonry cleaner:
 - a. Job-mixed detergent solution.
 6. Clean concrete masonry by means of cleaning method indicated in NCMA TEK 8-2A applicable to type of stain present on exposed surfaces.
 7. Clean all exposed concrete masonry of efflorescence in strict accordance with NCMA TEK 8-3A.
- D. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

END OF SECTION 04 20 00



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Division 06

Wood, Plastics and Composites



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SECTION 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Wood grounds, nailers, blocking, and sleepers
2. Plywood Backer Panels
3. Roof sheathing.

B. Wood Grounds, Nailers and Blocking

1. All wood used in roof construction shall be non-treated wood blocking.
2. All wood used in contact with concrete, masonry, and foundations shall be pressure treated with stainless steel fasteners.

1.2 REFERENCES

- A. Lumber Standard: Comply with PS-20 and with applicable rules of the respective grading and inspecting agencies for species and products indicated.
- B. Plywood Product Standards: Comply with PS 1 (ANSI A199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard PRP-108 for type of panel indicated.

1.3 DEFINITIONS

- A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.4 SUBMITTALS

A. Product Data:

1. Chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material
2. Treating plant's certification of compliance stating type of preservative used and method of treatment employed, net amount of preservative retained, and compliance with applicable standards
3. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.

- B. Certification that chemical treatment complies with specification for each type of treatment.



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1.5 JOB CONDITIONS

- A. Examine substrates and supporting structure and the conditions under which work is to be installed. Do not proceed with the installation until unsatisfactory conditions have been corrected.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
 - 1. For pressure treated lumber and plywood, place spacers between each bundle to provide air circulation.

1.7 QUALITY ASSURANCE

- A. Ensure all preservative is adequately fixed in wood. Reject lumber with surface residues of white salts. Provide wood that is kiln-dried after treatment or prefinished with a sealer.
- B. Obtain approvals from Building Official for alternative wood preservative treatment.
- C. No products used within the interior of the building shall contain urea formaldehyde glue.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: SPIB - Southern Pine Inspection Bureau.
- C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.



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3. "Standard" grade.
4. Southern Pine graded under SPIB rules.

2.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Grade: "Standard" grade light-framing-size lumber of any species or board-size lumber as required. No. 2 Boards per SPIB rules.
- D. Wood grounds, nailers, and sleepers shall be pressure treated as specified herein.

2.3 PLYWOOD PANELS

- A. Construction Panel Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood construction panels and, for products not manufactured under PS 1 provisions, with APA PRP-108.
- B. Trademark: Furnish construction panels that are each factory-marked with APA trademark evidencing compliance with grade requirements.
- C. Electrical or Telephone Equipment Backing Panels: DOC PS-1, Exposure 1 CD Plugged, fire retardant treated, Thickness: Minimum 15/32 inch. Paint per Division 15.
- D. Roof Sheathing: APA RATED SHEATHING. See Structural Drawings.

2.4 FASTENERS

- A. 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, or in area of high relative humidity, provide fasteners of AISI Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power Driven Fasteners: National Evaluation Report NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.



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- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

2.7 PRESSURE TREATMENT OF WOOD

A. Preservative Treatment

1. ACQ - Ammoniacal copper quarternary compound: Pressure-injected
2. Use 0.25 lb/cu ft retention
3. Kiln dry after treatment to 19 percent maximum moisture content for lumber and 18 percent for plywood
4. Optional Preservative Treatment: CDDC: Copper hydroxide sodium dimethyldithiocarbamate

B. Other acceptable products:

1. NatureWood by Osmose, Inc., Griffin, Georgia

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Coordinate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- E. Use screws, unless otherwise indicated. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached.



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- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, 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 involved. Remove temporary grounds when no longer required.

3.3 INSTALLATION OF CONSTRUCTION PANELS

- A. Comply with applicable recommendations contained in Form No. E30, "APA Design/Construction Guide - Residential & Commercial," for types of construction panels and applications indicated.
- B. Fastening: Plywood Backing Panels: Nail, bolt, or screw to supports.

END OF SECTION 06 10 00



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SECTION 06 41 00
MILLWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes, but not limited, to the following:
 - 1. Plastic laminate cabinets
 - 2. Solid surfacing countertops

1.2 DEFINITIONS

- A. Exposed Surfaces:
 - 1. Surfaces visible when doors and drawers are closed.
 - 2. Bottoms of cases more than 4 feet above floor.
 - 3. Visible members in open cases or behind glass doors
- B. Semi-Exposed Surfaces:
 - 1. Members behind opaque doors, such as shelves, divisions, interior faces of ends, case back, drawer sides, backs and bottoms, and back face of doors.
 - 2. Tops of cases 6'-6" or more above floor.
- C. Concealed Surfaces: Surfaces not visible after installation.

1.3 SUBMITTALS

- A. Product Data: Maintenance recommendations
- B. Shop Drawings:
 - 1. Details and sizes including methods of attachment
 - 2. Type and locations for support within walls
 - 3. Field verified dimensions
 - 4. Indicate utility locations to be coordinated with other trades
- C. Samples
 - 1. Full range of colors, textures, and patterns available for plastic laminate, edging and solid surfacing.
 - 2. Pull
- D. Sample Guarantee

1.4 JOB CONDITIONS

- A. Take field measurements. Show measurements on Shop Drawings.



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- B. Deliver casework only after wet work is complete and relative humidity is maintained within manufacturer's recommended range for one week. Store in ventilated spaces. Protect against damage during installation through the Date of Substantial Completion.

1.5 QUALITY ASSURANCE

- A. Defective workmanship or damaged components shall be corrected, repaired, or replaced as requested by the Architect, without further cost to the Owner.
- B. Manufacturer Qualifications: Minimum 7 years experience in the manufacturer and installation of the type of cabinets specified.
- C. Installer Qualifications: Minimum 5 years experience in the installation of the type of cabinets specified.
- D. Coordinate delivery of templates and other similar items from other trades necessary for the construction of required casework units.
- E. Coordinate submittals with construction schedule ensuring timely review to avoid delays from installation.
- F. Coordinate required in-wall blocking for adjustable shelving.
- G. Casework shall be manufactured and install to meet the requirements of the 2007 Florida Building Code with the 2009 Supplement and the Florida Fire Prevention Code 2004.
- H. Comply with Section 1600 – Modular Cabinets of the Architectural Woodwork Institute's Architectural Woodwork Quality Standards.

1.6 GUARANTEE

- A. 3 years from the Date of Substantial Completion against defects in material and workmanship. Cover repair or replacement, without cost to the Owner, of items that become defective within the 3-year period. Exception: Damage caused by improper operation or misuse.

1.7 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION

- A. Casework shall conform with the Accessibility Requirements Manual from the Florida Department of Community Affairs, Florida Board of Building Codes and Standards.

PART 2 - PRODUCTS

2.1 GENERAL WORKMANSHIP

- A. Coordinate with other trades for required dimensions of items to be built into casework.



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- B. Provide removable or false backs for access or concealment of heating or plumbing items.

2.2 MATERIALS

A. Plastic Laminate

- 1. Acceptable Manufacturers: Wilsonart, Pionite, Formica, and Nevamar
- 2. Decorative Laminates
 - a. High-pressure decorative laminate VGS (.028), NEMA LD 3-1995
 - b. High-pressure decorative laminate HGS (.048), NEMA LD 3-1995
 - c. High-pressure cabinet liner CLS (.020), NEMA LD 3-1995
 - d. High-pressure backer BKH (.028) NEMA LD 3-1995
- 3. Exposed horizontal surfaces: HGS
- 4. Exposed, interior and exterior vertical surfaces: VGS
- 5. Backing sheet for concealed surfaces: BKH or CLS for balanced panel.
- 6. Backing sheet for semi-exposed surfaces: BKH
- 7. Color (all surfaces): Selected by Architect.

B. Edging Material

- 1. High impact PVC extrusion, with satin finish
- 2. Door and Drawer Fronts: 3mm, machine profile to 1/8 inch radius
- 3. Horizontal and Vertical Front Cabinet Members: 1mm thick
- 4. Colors: Selected by Architect

C. Core Materials:

- 1. Formaldehyde-Free Particleboard
 - a. Cabinets: Provide Premium Industrial Grade, minimum 47 pound density, conforming to ANSI A208.1 – 1999, M3, formaldehyde-free particleboard.
 - b. Particle board Specifications
 - 1) Modules or Rupture, lb. per sq.in. 2500
 - 2) Modulus of Elasticity, lb. per sq. in. 450000
 - 3) Internal Bond, lb. per sq. in. 100
 - 4) Thickness Swell (24 hr immerse)..... 4%
 - 5) Moisture Content % by weight..... 6.0
 - 6) Screw Holding Face 330
 - 7) Screw Holding Edge..... 250
 - 8) Surface Strength lb. per sq. in. 275
 - 9) Hardness lb. 900
- 2. Hardboard: ANSI A135.4, Class 1 tempered, smooth, 2 sides equal to "Duron" by U.S. Gypsum Company.
- 3. Hardwood and Hardwood Plywood
 - a. Solid lumber or plywood concealed members; solid wood to be hardwood, kiln dried, select Poplar, Fir, or mill option lumber and plywood shall be Baltic Birch 7-ply, cabinet grade.



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D. Adjustable shelving:

1. Standards: Knape & Vogt #85
2. Brackets: Knape & Vogt #185 with # 106 Shelf Rest
3. Finish: As selected by Owner
4. Provide flathead screws for mounting.

E. Solid Surfacing Countertops

1. Homogeneous filled acrylic; not coated, laminated or of composite construction; meeting ANSI Z124.3 & 6, Type Six, and Fed. Spec. WW-P-541E/GEN.
2. Material shall have minimum physical and performance properties specified.
3. Superficial damage to a depth of 0.010" shall be repairable by sanding and polishing.
4. Performance Properties
 - a. Tensile Strength.....6000 psi per ASTM D 638
 - b. Flexural Strength.....7890 psi per ASTM D 790
 - c. Elongation.....0.4% per ASTM D 638
 - d. Wear and Cleanability.....passes ANSI Z 124.3
 - e. Stain Resistance.....passes ANSI Z124.3
5. Accessories
 - a. Joint adhesive shall be manufacturer's standard, two-part adhesive.
 - b. Panel adhesive shall be manufacturer's standard neoprene based panel adhesive meeting ANSI A 136.1 UL listed.
 - c. Sealant shall be mildew resistant silicone.
6. Manufacturer: "Corian" as manufactured by DuPont; or Owner approved equal.

2.3 HARDWARE AND MISCELLANEOUS

A. Hinges

1. Steel, institutional 5 knuckle with interlaying leaves, 270-degree swing, hospital tipped with non-removable pins fastened with 4 screws each leaf into faces. No edge fastening allowed.
2. Thickness .090 inch minimum
3. Doors 48 inches and over shall have 3 hinges per leaf
4. Finish: Powder coat baked-on enamel, color as selected by Architect.

B. Pulls

1. Bent wire type, solid anodized aluminum or stainless steel.
2. Accurately position on drawer and door fronts
3. Through fastened with machine screws



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- C. Drawer Slides
 - 1. Manufacturer's standard, epoxy coated metal, nylon rollers, 100 pounds dynamic load (or) European style, bottom mounted, captive profile, epoxy finished, nylon rollers, and 100 pounds dynamic loading with positive in-stop and out-stop.
 - 2. Provide full extension at designated drawers
 - 3. Provide outstop and outkeeper to maintain drawer in 80 percent open position.
 - 4. File drawers and paper storage drawers: Same as above except full extension and load rating static position to be no less than 125 pounds, Blum No. BS 430E.
- D. Adjustable Shelf Supports: Manufacturer's standard stainless steel or cadmium plated, 2 pin, anti-lift, minimum 200 pounds capacity support clip. Support to accept either 3/4 inch or 1-inch thick shelf.
- E. Catches: Magnetic type, adjusted for maximum 5-pound pull. Attach with screws and slotted for adjustment.

2.4 CABINET CONSTRUCTION

- A. Cabinet Base: 4-inch high, 3/4 inch CDX pressure-treated plywood. Provide additional center support for cabinets over 24 inches wide.
- B. Cabinets
 - 1. Sides, bottom, and top: Constructed of glued and spline doweled 3/4 inch formaldehyde-free particleboard providing balanced construction, surfaced with cabinet liner CLS for semi-exposed and vertical grade laminate for exposed locations.
 - 2. Back panel: Constructed of minimum 1/4 inch prefinished tempered hard board, surfaced with CLS for semi-exposed and vertical grade laminate for exposed locations, inset and glued into sides, bottom, and top.
 - 3. Exposed backs: Constructed of 3/4 inch formaldehyde-free particleboard, surfaced with vertical grade laminate of balanced construction for semi-exposed locations, glued and spline doweled, and mechanically attached if required.
 - 4. Intermediate support rail: Minimum 3/4 inch formaldehyde-free particleboard, surfaced with vertical grade laminate of balanced construction, glued and doweled into cabinet sides.
 - 5. Hanger rails: Two located at top and bottom of cabinet back, 3 on tall cabinets, locate at top, bottom, and center of 3/4 inch particleboard.
- C. Fixed and Adjustable Shelves and Dividers
 - 1. One inch formaldehyde-free particleboard shelves.
 - 2. Exposed Locations: Vertical grade plastic laminate both sides. Color to match cabinet exterior plastic laminate or as selected by Architect.
 - 3. Semi-exposed locations: VGS or CLS
 - 4. Front and back leading edges shall be edged with flat 1mm thick high impact PVC edging to match shelf color.
 - 5. Number of adjustable shelves provided, unless indicated otherwise on the Drawings or on the Schedule



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- a. Low and tall cabinets

1 up to 24 inches	4 up to 72 inches
2 up to 36 inches	5 up to 84 inches
3 up to 60 inches	6 up to 96 inches
 - b. Wall hung cabinets

0 up to 24 inches	2 up to 36 inches
1 up to 30 inches	3 up to 40 inches
 6. Adjustable dividers: 1/4-inch minimum thickness, prefinished tempered hardboard or plywood, smooth both faces, retained by molded plastic support clip.
 7. Fixed dividers: Constructed of 3/4 inch formaldehyde-free particleboard, surfaced with vertical grade laminate, providing balanced construction; glued and spline doweled. PVC edged to match laminate or adjacent PVC edging.
- D. Cabinet Doors
1. 3/4 inch formaldehyde-free particleboard
 2. High pressure plastic vertical grade laminate exterior and interior.
 3. Doors 48 inches and less in length shall have 2 hinges per door; doors over 48 inches in length shall have 3 hinges per door.
 4. Corners: Square with radiused edges, 3mm PVC edging.
- E. Drawers
1. Manufacturers standard construction of minimum components listed below; or high density formaldehyde-free fiber board; glued and doweled or dovetail jointed; surfaced with vertical grade laminate of balanced construction. Bottoms constructed of minimum 1/4-inch tempered hardboard, surfaced to match drawer sides, inset and glued to four sides.
 2. Drawer Bodies: 1/2-inch construction.
 3. Drawer Face
 - a. Constructed of minimum 3/4-inch formaldehyde-free particleboard, surfaced with VGS, screw attached to the drawer box.
 - 1) Corners: To match doors.
 - 2) Edging: To match doors.
 - 3) Plastic Laminate: To match doors.
 4. File Drawers: File drawers shall be constructed in accordance with standard drawers specified above with the following: Include front-to-back and side-to-side hanger file capability with hanger channel for letter size files integral with file drawer sides and 3/16-inch by 1/2-inch removable steel channel to span side-to-side for legal size hanging files.
- F. Counter tops and backsplashes are all Corian solid surfacing.
1. Provide 1 inch beveled edges at all countertops.



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- G. Sealants: Fully bed and seal splashes to tops and to other splashes with Dow Corning 786 Mildew Resistant Silicone Sealant, clear; or Architect approved equal.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine conditions under which casework will be installed. Do not proceed with installation until all unsatisfactory conditions have been corrected.
- B. Condition casework to conditioned space prior to installation.

3.2 INSTALLATION

- A. Erect casework, plumb, level, true, and straight without distortion.
- B. Countertops shall be installed flush against wall. Provide clear sealant at top and around ends of countertops, endsplashes, and backsplashes where they meet wall surfaces. Installed to within 1/8-inch of level in a 10-foot length in any direction. Seams to be flush.
 - 1. Scribe tops and backsplashes to walls and other adjoining vertical surfaces.
- C. Use filler sections and scribe panels to fit cabinetwork to required dimensions.
- D. Provide all items and accessories as required for a complete installation in every respect.
- E. Upper cabinets shall always be aligned with base cabinets unless otherwise approved by Architect.

3.3 ADJUSTMENT

- A. Adjust casework and hardware so that doors and drawers operate smoothly and within accessibility requirements.
- B. End cabinets placed against corners or where they tee into other cabinets or obstacles shall be provided with chain or bracket stops on the inside of the doors to prevent the door or door handles from hitting the obstruction.

3.4 CLEANING

- A. Exposed surfaces, edges, and cabinet interior shall be cleaned, and construction and installation marks removed prior to acceptance by Owner.



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3.5 GENERAL INSTALLATION PROVISIONS

- A. Inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

END OF SECTION 06 41 00

Division 07
Thermal and Moisture Protection

