

DIVISION VII
TECHNICAL SPECIAL PROVISIONS

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SECTION 0050
SPECIAL CONDITIONS

PART I - GENERAL

- 1.1 **SUMMARY OF WORK:** This project encompasses renovations of the Council Chambers located at 210 Military Trail in Jupiter Florida, respectively.
- 1.2 **RESTORATION OF DAMAGED PARTS OF THE WORK:** It shall be the responsibility of the Contractor to repair, rebuild or restore to its former condition any and all portions of existing utilities, structures, equipment, appurtenances or facilities, other than those to be paid for under the specifications, which may be disturbed or damaged due to his construction operations or work of any subcontractor or supplier.
- 1.3 **PRECAUTIONS AND COORDINATION WITH CURRENT ACTIVITIES:** The Contractor shall conduct his operations in such a manner that they will not unduly obstruct or delay current vehicular and pedestrian traffic movements in the vicinity of the work. Adequate warning signs and patrolling shall be utilized to protect the public and safely divert traffic from the work area. The owner must be provided full use of facility during construction.
- 1.4 **TOOLS, PLANT, EQUIPMENT:** If, at any time before the commencement or during the progress of the work, tools, plant or equipment appear to the Engineer to be insufficient, inefficient or inappropriate to secure the quality of work required, or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, to improve character, to augment their number or substitute new tools, plant or equipment, as the case may be and the Contractor shall conform to such order; the failure of the Engineer to demand such increase of efficiency shall not relieve the Contractor of his obligation to secure the quality of work and the rate of progress necessary to complete the work within the time required by the contract and to the satisfaction of the Owner. Failure to maintain specified work progress will result in delayed progress payments.
- 1.5 **TEMPORARY FACILITIES:**
 - A. Provide adequate protection for parking and grounds from oil, concrete stains and damage from equipment and operations.
 - B. A drinking fountain is located and available for use of employees in the Council Chambers lobby, which shall be kept clean and sanitary on a daily basis. The Contractor shall enforce the maintenance, hygiene, cleanliness, safety and compliance with public health regulations.
 - C. Protect lay down areas, and secure it safely from the public.
 - D. Provide Owner with after-hours telephone contact - should a safety problem arise.
 - E. Restroom facilities are located and available for use of employees in the Council Chambers lobby, which shall be kept clean and sanitary on a daily basis. The Contractor shall enforce the maintenance, hygiene, cleanliness, safety and compliance with public health regulations.
- 1.6 **SUPERVISION:** The contractor shall provide a superintendent, whose qualifications are approved by the engineer, to direct all phases of the work. This individual shall be on site whenever work is in progress by any trade. Any change in supervision must be approved in writing by the engineer after the start of work. Progress payments will not be processed if supervisor is not acceptable to the Engineer.
- 1.7 **CLEANUP:** The Contractor at all times shall keep the premises free from accumulation of waste

materials or rubbish caused by his operations. At the completion of the work he shall remove all waste materials and rubbish from and about the project, as well as all his tools, construction equipment, machinery and surplus materials.

- 1.8 Work Hours: Contractor work hours are restricted to Monday through Friday from 7:00 a.m. to 5:00 p.m and s 8:00 a.m. to 4:00 p.m. NO SATURDAY or SUNDAY work is allowed. The Contractor shall not leave work unattended at any time as the building is in use at all times.
- 1.9 Damage: The Contractor shall be responsible for any damage caused by the Contractor's operations to the Town's property, plant or equipment. Replacement of any damaged property, plant or equipment shall be as directed by the Engineer and to produce a replacement equal to or exceeding the original.
- 1.10 Laydown and Storage: Space and parking at Town Hall is limited. The contractor will be allocated three (3) parking spaces for laydown, storage and parking located near the east Council Chambers entrance. No other areas at Town Hall shall be used by the Contractor for parking, laydown and storage.

PART 2 – PRODUCTS (Not used for this Section)

PART 3 – EXECUTION (Not used for this Section)

PART 4 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT

- 4.1 General:** Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 0050

SECTION 01300
ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Coordinate construction to ensure efficient and orderly installation of each part of the Work.

1.2 SUBMITTAL PROCEDURES

- A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
- B. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
- C. Submit five copies of each submittal. Engineer will return one copy.
- D. Engineer will discard submittals received from sources other than Contractor. Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer. Include the following information on the label:

- Project name.

- Date.

- Name and address of Contractor.

- Name and address of subcontractor or supplier.

- Number and title of appropriate Specification Section.

- E. Identify deviations from the Contract Documents on submittals.

- F. Contractor's Construction Schedule Submittal Procedure: Submit two copies of schedule within 21 days after date of the Notice of Contract Award. The Town will review the schedule and when the schedule is acceptable to the Town, the Town will mark the schedule "As Accepted".

1.3 PRODUCTS

PART 2 - ACTION SUBMITTALS

2.1 Product Data: Mark each copy to show applicable products and options. Include the following:

- A. Manufacturer's written recommendations, product specifications, and installation instructions.
- B. Wiring diagrams showing factory-installed wiring.
- C. Printed performance curves and operational range diagrams.
- D. Testing by recognized testing agency.
- E. Compliance with specified standards and requirements.

2.2 Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:

- A. Dimensions and identification of products.
- B. Fabrication and installation drawings and roughing-in and setting diagrams.
- C. Wiring diagrams showing field-installed wiring.
- D. Notation of coordination requirements.

- E. Notation of dimensions established by field measurement.
- 2.3 Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.
- A. If variation is inherent in material or product, submit at three sets of paired units that show variations.
- 2.4 INFORMATION SUBMITTALS
- A. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
 - B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- 2.5 DELEGATED DESIGN
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - B. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.
 - C. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - D. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- 2.6 CONTRACTOR'S CONSTRUCTION SCHEDULE
- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within 21 days after contract award or at the pre-construction conference whichever is earlier for the Engineer's review.
 - B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Engineer will review each action submittal, make marks to indicate corrections or modifications required, stamp and mark as appropriate to indicate action taken, and return copies less those retained.

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Distribute copies of approved schedule to Owner, Engineer, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.
- B. Updating: At monthly intervals, update schedule to reflect actual construction progress

and activities. Issue schedule one week before each regularly scheduled progress meeting.

C. As the Work progresses, indicate Actual Completion percentage for each activity.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

4.1 General: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 01300

SECTION 01400
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
- B. Testing and inspecting services are specified in other Sections of these Specifications or are required by authorities having jurisdiction and shall be performed by independent testing agencies.
- C. Where quality-control services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these services.
- E. Contractor is responsible for scheduling times for tests, inspections, and obtaining samples and notifying testing agency.
- F. Retesting and Re-inspecting: Contractor shall pay for additional testing and inspecting required as a result of tests and inspections indicating noncompliance with requirements.

1.2 SUBMITTALS: Testing agency shall submit a certified written report of each test and inspection to Contractor, Engineer and to authorities having jurisdiction when they so direct. Reports of each inspection, test, or similar service shall include the following:

- A. Name, address, and telephone number of testing agency.
- B. Project title and number.
- C. Date of issue.
- D. Dates and locations of samples and tests or inspections.
- E. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
- F. Names of individuals making tests and inspections.
- G. Description of the Work and test and inspection method.
- H. Complete test or inspection data, test and inspection results, an interpretation of test results, and comments or professional opinion on whether tested or inspected work complies with the Contract Document requirements.
- I. Recommendations on retesting and re-inspecting.
- J. Name and signature of laboratory inspector.

1.3 TESTING AGENCY QUALIFICATIONS: An independent agency with the experience and capability to conduct testing and inspecting indicated; and where required by authorities having jurisdiction, that is acceptable to authorities.

- A. Testing Agency Responsibilities: Testing agency shall cooperate with Engineer and Contractor in performing its duties and shall provide qualified personnel to perform inspections and tests.
- B. Agency shall promptly notify Engineer and Contractor of irregularities or deficiencies in the Work observed during performance of its services.
- C. Agency shall not release, revoke, alter, or increase requirements of the Contract Documents nor approve or accept any portion of the Work.
- D. Agency shall not perform any duties of Contractor.

1.4 AUXILIARY SERVICES: Cooperate with testing agencies and provide auxiliary services as requested, including the following:

- A. Access to the Work.
- B. Incidental labor and facilities necessary to facilitate tests and inspections.
- C. Adequate quantities of materials for testing, and assistance in obtaining samples.
- D. Facilities for storage and field curing of test samples.
- E. Security and protection for samples and for testing and inspecting equipment.

1.5 SPECIAL TESTS AND INSPECTIONS: Engineer will engage a qualified testing laboratory to conduct special tests and inspections required by authorities having jurisdiction.

- A. Special Tests and Inspections: Conducted by a qualified testing laboratory as required by authorities having jurisdiction, as indicated in individual Specification Sections.
- B. 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.

PART 2 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

2.1 GENERAL: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 01400

SECTION 01600
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1.2 PRODUCT SUBSTITUTIONS: Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by the Contractor after award of the Contract.

- A. Submit three copies of each request for product substitution.
- B. Submit requests within 21 days after Notice of Contract Award
- C. Do not submit unapproved substitutions on Shop Drawings or other submittals.
- D. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
- E. The Engineer will review the proposed substitution and notify Contractor of its acceptance or rejection

1.3 COMPARABLE PRODUCT REQUESTS:

- A. Submit three copies of each request for comparable product. Do not submit unapproved products on Shop Drawings or other submittals.
- B. Identify product to be replaced and show compliance with requirements for comparable product requests. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified.
- C. Engineer will review the proposed product and notify Contractor of its acceptance or rejection.

1.4 Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

- A. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
- B. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- C. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- D. Store materials in a manner that will not endanger Project structure.
- E. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

1.5 Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract

Documents.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Revise first paragraph below if any salvaged items or materials are used.
- B. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
- C. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
- D. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

2.2 Product Selection Procedures:

- A. Where Specifications name a single product or manufacturer, provide the item indicated that complies with requirements.
- B. Where Specifications include a list of names of products or manufacturers, provide one of the items indicated that complies with requirements.
- C. Where Specifications include a list of names of products or manufacturers, accompanied by the term "available products" or "available manufacturers," provide one of the named items that comply with requirements. Comply with provisions for "comparable product requests" for consideration of an unnamed product.
- D. Where Specifications name a product as the "basis-of-design" and include a list of manufacturers, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by the other named manufacturers.
- E. Select subparagraph above or subparagraph below if "basis of design" products are specified.
- F. Where Specifications name a single product as the "basis-of-design" and no other manufacturers are named, provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by another manufacturer.

2.3 Unless otherwise indicated, Engineer will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

PART 3 – EXECUTION (Not Applicable)

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

4.1 **GENERAL:** Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment for this Item. The cost for the work in this section shall be included on a proportionate basis, to those Sections which include a Pay Item under the Method of Measurement and Basis of Payment.

END OF SECTION 01600

SECTION 01700

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

- 1.1 CLOSEOUT SUBMITTALS
- 1.2 Record Drawings: Maintain a set of prints of the Contract Drawings as Record Drawings. Mark to show actual installation where installation varies from that shown originally.
- 1.3 Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- 1.4 Delete paragraph and subparagraphs below if Specifications are on Drawings.
- 1.5 Operation and Maintenance Data: Submit three copies of manual. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:
 - A. Manufacturer's operation and maintenance documentation.
 - B. Maintenance and service schedules.
 - C. Maintenance service contracts.
 - D. Emergency instructions.
 - E. Spare parts list.
 - F. Wiring diagrams.
 - G. Copies of warranties.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

- 3.1 EXAMINATION AND PREPARATION
 - A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.
 - B. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to property survey and existing benchmarks.
- 3.2 Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabrication and, when possible, allow for fitting and trimming during installation.
- 3.3 CUTTING AND PATCHING
 - A. Do not cut structural members or operational equipment without prior written approval of Engineer.
 - B. Retain first paragraph below if Owner continues to occupy other portions of an existing facility.
 - C. Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
 - D. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

3.4 INSTALLATION

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned with other portions of the Work. Clean exposed surfaces and protect from damage.
- B. Clean Project site and work areas daily, including common areas.

3.5 FINAL CLEANING

- A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
 - 4. Vacuum carpeted surfaces and wax resilient flooring.
 - 5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
 - 6. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.6 CLOSEOUT PROCEDURES

- A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
- B. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
- C. Advise Town of pending insurance changeover requirements.
- D. Submit specific warranties, maintenance service agreements, and similar documents.
- E. Obtain and submit releases permitting Town unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
- F. Submit Record Drawings, operation and maintenance manuals, and similar final record information.
- G. Deliver tools, spare parts, extra materials, and similar items.
- H. Make final changeover of permanent locks and deliver keys to Town.
- I. Complete startup testing of systems.
- J. Remove temporary facilities and controls.
- K. Submit changeover information related to Town's occupancy, use, operation, and maintenance.
- L. Complete final cleaning requirements, including touchup painting. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- M. Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will proceed with inspection or advise Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.
- N. Request inspection for Final Completion, once the following are complete:

1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
2. Instruct Town's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
3. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
4. Submit a written request for final inspection for acceptance. On receipt of request, Engineer will proceed with inspection or advise Contractor of unfulfilled requirements. Engineer will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

- 4.1 General: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 01700

SECTION 01732
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.
- B. Comply with EPA regulations and hauling and disposal regulations of authorities having jurisdiction.
- C. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- D. It is not expected that hazardous materials will be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.
- B. Provide temporary dust control measures to remain and protect against damage to Town's facilities during selective demolition operations and other construction phases. Temporary dust control measures shall be in place and functioning properly, before commencement of work. Any required remediation work, due to dust damage, shall be the Contractor's responsibility and at no additional expense to the Town.
- C. Locate, identify, shut off, disconnect, and cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
- D. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- E. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain or construction being demolished.
- F. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.
- G. Protect walls, ceilings, floors, and other existing finish work that are to remain. Erect and maintain dustproof partitions. Cover and protect furniture, furnishings, and equipment that have not been removed.
- H. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
- I. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

4.1 General: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 01732

SECTION 06105
MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Model code evaluation reports for treated wood and manufacturer's certification for the preservative treatment.

PART 2 - PRODUCT

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Provide dressed lumber, S4S, marked with grade stamp of inspection agency.

2.2 TREATED MATERIALS

- A. Preservative-Treated Materials: AWWA C2
1. Use treatment containing no arsenic or chromium.
 2. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
 3. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- B. Provide preservative-treated materials for miscellaneous rough carpentry as noted below.
1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Concealed members in contact with masonry or concrete.
 3. Wood framing members that are less than 18 inches above the ground.
 4. Wood floor plates that are installed over concrete slabs-on-grade.
- C. Fire-Retardant-Treated Materials: Comply with performance requirements in AWWA C20.
1. Use Exterior type for exterior locations and where indicated.
 2. Use Interior Type A, High Temperature (HT) where indicated.
 3. Use Interior Type A, unless otherwise indicated.
 4. Identify with appropriate classification marking of a testing and inspecting agency acceptable to authorities having jurisdiction.
 5. Provide fire-retardant treated materials for items indicated on Drawings.

2.3 LUMBER

- A. Dimension Lumber:
1. Maximum Moisture Content: 19 percent.
 2. Select one grade requirement and one or more species group in first two subparagraphs below depending on availability and suitability for Project.
 3. Species groups in first subparagraph below are listed in order of decreasing strength (extreme fiber in bending).
 4. Framing, Blocking and miscellaneous lumber required: No 2 Pine.
 5. Roof Decking: n/a.
 6. Roof Sheathing: n/a.

2.4 FASTENERS

- A. Select one or more species in first two paragraphs below depending on availability and

suitability for Project.

- B. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, in contact with preservative wood treatment, used as an element in connection with roofing or in an area of high relative humidity, provide fasteners which shall be Type 316 stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set miscellaneous rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction. Do not oversize cuts or holes. Accurately, cut, nail and fasten framing, blocking and lumber required for the work.
- B. All carpentry work shall be performed by skilled tradesmen with experience in the type C.
- C. Securely attach miscellaneous rough carpentry to substrates, complying with the following:
 - 1. All Fasteners and attachments shall be designed by a Professional Engineer registered in the State of Florida. Submit Signed and Sealed Calculations for all required fasteners.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

- 4.1 General:** Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 06105

SECTION 06200
FINISH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Samples for hardwood veneer plywood paneling.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- B. Softwood Plywood: DOC PS 1.
- C. Hardwood Plywood: HPVA HP-1.
- D. MDF: ANSI A208.2, Grade 130.
- E. Particleboard: ANSI A208.1, Grade M-2.
- F. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.2 EXTERIOR FINISH CARPENTRY: n/a

2.3 INTERIOR STANDING AND RUNNING TRIM

- A. Interior Softwood Lumber Trim: As per plan.
 - 2.3.A.1 **Maximum** Moisture Content: 19 percent.
- B. Interior Hardwood Lumber Trim: Clear, kiln-dried, as per plan.
- C. Wood Moldings: WMMPA WM 4 made to patterns in WMMPA WM 12 from kiln-dried stock.
 - 2.3.C.1 Softwood Moldings for Transparent Finish: As per plan.
 - 2.3.C.2 Moldings for Painted Finish: P-Grade: As per plan.
 - 2.3.C.3 Base: As per plan.
- D. PVC-Wrapped Moldings: n/a
- E. Foam-Plastic Moldings: n/a.

2.4 FIRE-RATED INTERIOR DOOR FRAMES: n/a

2.5 PANELING: n/a

2.6 SHELVING AND CLOTHES RODS: n/a

2.7 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: n/a.
- B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Condition finish carpentry in installation areas for 24 hours before installing.
- B. Prime and backprime lumber for painted finish exposed on the exterior.
- C. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.
- D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.

- E. Nail siding at each stud. Do not allow nails to penetrate more than one thickness of siding, unless otherwise recommended by siding manufacturer. Seal joints at inside and outside corners and at trim locations.
- F. Select and arrange paneling for best match of adjacent units. Install with uniform tight joints.
- G. Exterior Stairs: n/a.
- J. Interior Stairs: Secure treads and risers by gluing and nailing to rough carriages.
 - 1. Closed Stringers: House treads and risers into wall stringers, glue, and wedge into place.
 - 2. Open Stringers: Miter risers and stringer at open stringers. Extend tread over open stringers and finish with bullnose edge.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

4.1 General: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 06200

SECTION 09290
GYPSUM BOARD

PART 3 - GENERAL

3.1 SECTION REQUIREMENTS

- 3.7.1 Submittals: Product Data.
- 3.7.1 Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- 3.7.1 STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

PART 4 - PRODUCTS

4.1 PANEL PRODUCTS

- 3.7.1 Provide in maximum lengths available to minimize end-to-end butt joints.
- 3.7.1 Interior Gypsum Board: ASTM C 36 or ASTM C 1396, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.
- 3.7.1 Exterior Gypsum Soffit Board: ASTM C 931 or ASTM C 1396, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.
- 3.7.1 Water-Resistant Gypsum Backing Board: ASTM C 630 or ASTM C 1396, in thickness indicated. Regular type unless otherwise indicated.
- 3.7.1 Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178, of thickness indicated. Regular type unless otherwise indicated.
- 3.7.1 Cementitious Backer Units: ANSI A118.9.

4.2 ACCESSORIES

- 3.7.1 Trim Accessories: ASTM C 1047, formed from galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet. For exterior trim, use accessories formed from hot-dip galvanized-steel sheet, plastic, or rolled zinc.
 - 1. Provide cornerbead at outside corners unless otherwise indicated.
 - 2. Provide LC-bead (J-bead) at exposed panel edges.
 - 3. Provide control joints where indicated.
- 3.7.1 Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer.
- 3.7.1 Joint-Treatment Materials: ASTM C 475.
 - 1. Joint Tape: Paper unless otherwise recommended by panel manufacturer.
 - 2. Joint Compounds: Setting-type compounds.
 - 3. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.
 - 4. Cementitious Backer Unit Joint-Treatment Materials: Products recommended by cementitious backer unit manufacturer.
- 3.7.1 Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.
- 3.7.1 Sound-Attenuation Blankets: ASTM C 665, Type I (unfaced).
- 3.7.1 Acoustical finish where indicated.
 - 1. Available Products: n/a

PART 5 - EXECUTION

5.1 INSTALLATION

- 3.7.1 Install gypsum board to comply with ASTM C 840.
 - 1. Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant.
 - 2. Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.
 - 3. Multilayer Fastening Methods: Fasten base layers and face layer separately to supports with screws.
- 3.7.1 Install cementitious backer units to comply with ANSI A108.11.
- 3.7.1 Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.
- 3.7.1 Finishing Gypsum Board: ASTM C 840.
 - 1. At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
 - 2. At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
 - 3. Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
 - 4. Where indicated, provide Level 5 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges. Apply skim coat to entire surface.
- 3.7.1 Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
- 3.7.1 Cementitious Backer Units: Finish according to manufacturer's written instructions.
- 3.7.1 Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

- 4.1 General: Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 09290

SECTION 09680

CARPET

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- B. Submittals: Product Data and Samples.
- C. Extra Materials: Deliver to Owner full-width carpet equal to 5 percent of each type and color carpet installed, packaged with protective covering for storage.

PART 2 - PRODUCTS

2.1 CARPET

- A. Products:
 - 1. Commercial grade to match existing pattern and color or as selected by owner.
- B. Fiber Content: Match existing.
- C. Pile Characteristic: Match existing.
- D. Density: Match existing.
- E. Face Weight: Match existing.
- F. Total Weight: Match existing.
- G. Primary Backing:
- H. Secondary Backing: Match existing.
- I. Width: As per plan.
- J. Critical Radiant Flux Classification: Match existing.
- K. HUD Requirements: Comply with requirements in HUD's "Use of Materials Bulletin No. 44d" for applications: n/a.

2.2 CARPET CUSHION Match existing.

- A. Traffic Classification: CCC Class III, extra-heavy traffic.
- B. Fiber Cushion: Match existing.
 - 1. Weight: Match existing.
 - 2. Thickness: Match existing.
 - 3. Density: Match existing.
- C. Rubber Cushion: Match existing.
 - 1. Weight: Match existing.
 - 2. Thickness: Match existing.
 - 3. Compression Resistance: Match existing.
 - 4. Density: Match existing.
- D. Polyurethane Foam Cushion: Match existing.
 - 1. Compression Force Deflection at 64 Percent: per ASTM D 3574.
 - 2. Thickness: Match existing.
 - 3. Density: Match existing.

- E. Critical Radiant Flux Classification: Match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with CRI 104.
- B. Installation Method: Direct glue-down.
- C. Installation Method for Stairs: n/a
- D. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
- D. Install pattern parallel to walls and borders.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

- 4.1 General:** Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

END OF SECTION 09680

SECTION 16001
ELECTRICAL SYSTEMS

PART 1 - GENERAL

- 1.1 REFERENCE: The provisions of Section 0500 apply to this Section.
- 1.2 DEFINITIONS: Provide means to furnish and install in a complete and properly working manner.
- 1.3 WORK INCLUDED:
- A. Provide all labor, materials, tools, supplies, equipment and temporary utilities to complete the work shown on the drawings and specified herein. All respective systems are to be provided as a totally operational system.
- 1.4 DIVISION OF WORK:
- A. All wiring from motor control centers, panel boards or branch feeders to separate mechanical equipment motors and associated switches, motor starters and contactors shall be the responsibility of the General Contractor and his designated sub-contractor. The division of work among the General Contractor and his sub-contractors shall be the responsibility of the General Contractor. The General Contractor has the sole responsibility to ensure that all material and work, to fully and successfully complete the project to the satisfaction of the engineer, is included within the contractor's bid. The Contractor shall perform all power feed wiring to mechanical equipment. The contract drawings indicate circuit breakers, starters, fuses, fusible and non-fusible disconnect switches, conduit and conductor sizes required for power feeds to mechanical equipment. These are representative only and are designed for a specific manufacturer and model chosen by the Mechanical Designer. If the Contractor supplies equipment which differs in its electrical requirements, the Contractor must properly resize all power feeds and electrical equipment to match at no additional expense to the Owner; new sizes shall be submitted for review.
- B. Controls for mechanical equipment specified by other divisions of these specifications; such as thermostats, damper motors, control transformers, humidistats, etc. shall be provided by the contractor, including conduits, conductors, and complete circuitry, unless specifically shown otherwise on the contract drawings. The Electrical Contractor shall make any special decisions required regarding the divisions of work. In no event shall such work involve additional expense to the owner.
- 1.5 JOB SITE VISIT: Visit the project site before submitting a bid. Verify all dimensions and determine the characteristics of existing facilities which will affect performance of the work, but which are not shown on drawings or described within these specifications.
- 1.6 TEMPORARY LIGHT AND POWER:
- A. The Contractor shall include in his bid the cost of furnishing, installing, maintaining and removing all material and equipment required to provide temporary light and power to perform the work of all trades during construction and until work is completed. Adequate lighting and receptacle outlets for operation of hand tools shall be provided throughout the project.
- 1.7 DRAWINGS: The drawings are schematic showing relative locations and connections and shall not be scaled for exact locations. Unless specific dimensions are shown, the structural, architectural and site conditions shall govern the exact locations. Should any difficulty occur in

the running of conduits, setting of cabinets, outlets, fixtures, or any other devices or connections at the points shown provide necessary minor deviations there from as approved without additional cost.

- 1.8 RELATED WORK SPECIFIED ELSEWHERE:
 - A. General conditions.
 - B. Mechanical systems.
- 1.9 QUALITY ASSURANCE: Electrical Contractor shall be licensed by the authority having jurisdiction. (State of Florida and Town of Jupiter.)
- 1.10 LAWS, PERMITS, FEES AND NOTICES: Secure and pay all permits, fees and licenses necessary for the proper execution and completion of the work. Submit all notices and comply with all laws, ordinances, rules and regulations of any public agency bearing on the work.
- 1.11 CODES AND STANDARDS: Compliance with all applicable codes and standards along with those particularly mentioned within these specifications is required.
 - A. U.L.: Electrical materials shall be listed for intended application by the Underwriter's Laboratories, Inc. (U.L.). Factory applied U.L. labels are required on all such items.
 - B. OSHA: Comply with Standards of the Occupational Safety and Health Administration.
 - C. National Electrical Code (NEC) - NFPA 70, 2005 Edition.
 - D. NEMA: National Electrical Manufacturers Association Standards are to be met wherever standards have been established by that agency.
 - E. Palm Beach County Fire Code, Applicable Edition, and all referenced standards and publications.
 - F. Florida Building Code 2004 (with 2006 Addendums), Applicable Edition.
 - G. Florida Accessibility Code, Applicable Edition.
 - H. Verify with the authorities having jurisdiction that the presentation set forth in these plans and specifications conforms to local interpretations of the applicable codes, standards and references. If deviations in these interpretations exist, the Contractor shall notify the Engineer prior to bid date and instructions will be issued. Failure to do so automatically places the onus of code compliance as interpreted by the jurisdiction upon the Contractor.
- 1.12 DEPARTURES: If any departures from the contract drawings or specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted as soon as practical, but before any work is done, to the Engineer for advance written approval.
- 1.13 GUARANTEES:
 - A. Final Acceptance - Covered in contract.
 - B. The Owner reserves the right to operate and use all materials and equipment failing to meet the requirements of the contract documents until such unacceptable materials and equipment are replaced or repaired to the satisfaction of the Engineer.
- 1.14 AS-BUILT INFORMATION:
 - A. Maintain a complete set of electrical prints indicating all changes.
 - B. Use colored pencil or pen to mark changes at the time of execution.
 - C. Deliver the set to the Owner's Representative upon completion.

- D. The As-Builts will be checked each month for compliance prior to release of any Progress Payments.
 - E. Elevations and dimensioned locations of underground work shall be indicated. Dimension to permanent reference points.
 - F. At the time of final inspection, the Contractor shall submit a clearly marked as-built print showing deviations from Contract Drawings.
 - G. Within thirty days after the date of system acceptance, record drawings of the actual installation shall be provided to the building owner, including a single-line diagram of the building electrical distribution system including floor plans indicating location and area served for all distribution. Drawings of the electrical distribution system shall include an operating manual and maintenance manual with submittal data stating equipment rating and selected options for each piece of equipment requiring maintenance. Required routine maintenance actions shall be clearly identified. Provide the name and address of at least one qualified service agency and provide a blank for numbering consistency of performance calculation procedures.
- 1.15 SERVICE MANUALS: Submit to the Owner three (3) copies of all manufacturer's service installation and operation manuals, instructions and bulletins. Service manuals must contain, but are not limited to the following:
- A. Brief description of system and basic features.
 - B. Manufacturer's name and model numbers of all components of the system.
 - C. List of local factory authorized service companies.

PART 2 - PRODUCTS

- 2.1 STANDARD PRODUCTS: Unless otherwise indicated in writing by the Engineer, the materials to be furnished under this specification shall be the manufacturer's latest standard design. Where two or more units of the same class of equipment are required, these units shall be products of the same manufacturer. Units of equipment and components of the same purpose and rating shall be interchangeable throughout the project.
- 2.2 NEW MATERIALS: All materials shall be newly manufactured. Defective equipment or equipment damaged in the course of installation or test shall be replaced or repaired in a manner meeting the requirements of these documents at no additional expense to the Owner.
- 2.3 HARDWARE: All hardware and accessory fittings shall be of a type designed, intended or appropriate for the use, and complement the items with which they are used. Hardware shall have corrosion protection suitable for the atmosphere in which they are installed. Hardware shall be U.S. Standard sizes.
- 2.4 EQUIPMENT: Equipment of a similar nature shall be identical. Example: All panel boards shall be of the same manufacturer and of the same style.
- 2.5 SHOP DRAWINGS AND MATERIALS SUBMITTALS:
- A. Submit six (6) copies of all shop drawings to the Engineer prior to the time such equipment and materials are to be ordered. Shop drawings will not be accepted for partial system submittals; submit all data at one time. Shop drawings will be returned "Reviewed", "Revise and Resubmit", "Rejected", and "Furnished as Corrected". Only items "furnished as corrected" must be changed to comply with the Engineer's comments. Items marked "revise and resubmit" must be resubmitted after proper revisions are made. Items "rejected" are not suitable, requiring complete new submittals.

- B. Shop drawing material submittals may be in the form of catalog cuts, manufacturer's data sheets and calculations giving a full description of all materials.
- C. Submittals are required for all items of electrical equipment. Submittals must be arranged, correlated, indexed and bound in orderly sets for ease of review.
- D. Submission for review of products other than those listed in these specifications will be considered if submitted in accordance with Division 1. Submissions shall be accompanied by necessary technical data, physical size and other pertinent information for full evaluation of the proposed product.

2.6 MATERIALS AND REQUIREMENTS:

- A. Motor Starters:
 - 1. Coordinate starter requirements with other trades. Supply all starters not specifically defined elsewhere in these contract documents.
 - 2. Magnetic Motor Starters: In applications with motors over one horsepower and where controls other than manual on and off are involved, motor starters which are operated by magnetic coils shall be provided. The contract drawings indicate the NEMA sizes required. Provide starters with the following additional features:
 - a. Rated for voltage imposed.
 - b. Enclosure for the applicable usage;
NEMA 1 for dry, indoors, interior, conditioned spaces (except kitchens),
NEMA 3R Galvanized for interior non-conditioned spaces,
(except kitchens) and
NEMA 4 Stainless Steel for all exterior, as well as, kitchen areas.
 - c. Control circuit voltage and amperage to match coil voltage and ratings of control apparatus such as switches, thermostats, flow switches, contactors, etc.
 - d. Fuses and control transformers for control circuits.
 - e. Overload elements for every conductor leg above ground. Elements are to be re-settable types, properly sized for the load per the NEC.
 - f. Cover mounted control switches shall be a "hand-off-auto" type with "start-stop" as required by the type of circuit.
 - g. A suitable reset device for manually resetting overcurrent trip shall be provided.
 - h. Unless shown otherwise on the drawings, starters shall be located where visible from the motor, and not more than 50 feet away.
 - i. Starters for motors 10 horsepower or less shall be connected to automatically return the motor to service after a power interruption. Starters for motors over 10 horsepower shall be equipped with time delay relays so that after a power resumption and after a preset relay of 0 to 30 seconds, the motor shall automatically be returned to service.
 - j. Motor starter coils shall be quiet and shall emit no distracting noises or hum. Each starter located within or adjacent to a quiet area shall cause a

sound pressure level of less than 20 decibels, related to 0.0002 microbar as measured by the Engineer.

- k. Unless shown otherwise, starters shall be across the line, full voltage types.
- 3. Manual Motor Starters (one HP maximum): Thermal overload switches (manual starters) shall be single pole, two poles, or three pole, as required. The maximum setting of the overcurrent trip device shall be as specified for the particular motor being protected. Heater elements shall be removable from the front, with the trip rating clearly marked on the element for easy identification from the front. Trip rating shall be identified by an appropriate label on the inside surface of cover. Where thermal overload switches with pilot lights are indicated on the drawings, combination thermal overload switches with pilot lights shall be acceptable provided the pilot light is neon type. Incandescent pilot lights shall not be mounted in the same outlet box with thermal overload switches, but shall be installed in a separate box above or to the side of the thermal switch.

B. Conductors and Connections:

- 1. Low Voltage Conductors: Conductors shall be rated for 600 volts and shall meet the requirements below:
 - a. Conductors subjected to rough handling or usage shall be removed from the premises. Pull conductor directly from the box or spool and do not allow conductor to be dragged across the ground or roof.
 - b. Conductors No. 8 AWG and larger shall be stranded.
 - c. All wire shall be brought to the job in unbroken packages and shall bear the date of manufacturing; not older than 12 months.
 - d. Type of wire shall be THHN/THWN except where required otherwise by the contract drawings or applicable codes.
 - e. No wire smaller than No. 12 gage shall be used unless specifically indicated in these contract documents.
 - f. Conductor metal shall be copper.
 - g. Electrical conductors (Wire) shall be manufactured in the United States of America.
- 2. Low Voltage Connections:
 - a. Conductors shall be joined in such a manner that the resistance of the connection is less than or equal to the resistance of the conductors involved. All connections must be free of corrosion and must be watertight. Insulation resistance at connections must equal or exceed the adjacent conductor insulation.
 - b. Conductors No. 8 AWG or larger shall be joined by approved pressure connectors. Submit connector to Engineer for review and comment.
 - c. Connection to ground conductors No. 4 AWG and larger shall be cast by fusible metal process.

- d. Low voltage control wiring shall be electrically and mechanically secure.
 - e. Only approved mechanical pulling methods may be employed.
 - f. Connections shall not be made in conduits, inaccessible pull boxes, or overhead spans.
- C. Raceways: All wire shall be installed in raceway systems unless noted otherwise in these documents.
- 1. Galvanized Rigid Conduit: Rigid steel conduit "GRS" shall be Schedule 40, mild steel pipe, zinc-coated on the inside and outside. Fittings shall be zinc-coated, threaded type.
 - 2. Electrical Metal Tubing: Tubing "EMT" shall be U.L. listed and used only in dry spaces.
 - 3. All fittings for "EMT" and flexible conduit shall be steel compression type, or steel set screw type.
 - 4. Flexible Conduits: Flexible conduits shall be liquid-tight, made of corrosion resistant plated steel with extruded polyvinyl covering and watertight connectors. Flexible conduit "green field" may be used in lengths six feet or less for fixture or device connection in dry interior building conditioned spaces. A separate equipment bonding conductor shall be installed in all flexible conduit.
 - 5. Nonmetallic Conduit: Nonmetallic conduits shall be polyvinyl chloride "PVC", temperature rated for 90 degrees C. use, heavy wall, Schedule 40, rigid.
 - 6. Conduit Location Requirements:
 - a. GRS conduit may be used throughout the project except in corrosive areas.
 - b. EMT conduit may be used only in dry and conditioned spaces.
 - c. PVC conduit may be used in concrete, underground and in corrosive areas except as noted above. Any turn ups from PVC through slabs shall be GRS painted with two coats of asphaltum.
 - d. Metallic conduit used in concrete or underground shall be coated with two applications of corrosion resistant material listed for that use.
 - 7. Installation:
 - a. Conductors subjected to rough handling or usage shall be removed from the premises.
 - b. Conduits must be kept dry and free of water or debris with approved pipe plugs or caps. Care shall be given that plugs or caps are installed before pouring of concrete.
 - c. Where conduits pass through exterior concrete walls or footings below grade, the entrance shall be made watertight. This shall be done by providing pipe sleeves in the concrete one-half inch minimum clearance around the conduit and caulking with okum and sealant specified, or by means of a conduit entrance seal.
 - d. In furred ceilings, the conduit runs shall be supported from structure, not furring.

- e. Conduits, where entering panelboards, pull boxes, or outlet boxes shall be secured in place by galvanized locknuts and bushings, one locknut outside and one locknut inside of box with bushing on conduit end. The locknuts shall be tightened against the box without deforming the box. Bushings shall be of the insulating type.
- f. Field conduit bends shall be made with standard tools and equipment manufactured especially for conduit bending. Do not use flame sources on PVC conduits.
- g. Where embedded conduits cross expansion joints, furnish and install offset expansion joints or sliding expansion joints. Sliding expansion joints shall have bonding strap and clamp.
- h. Exposed runs of conduit shall be installed with runs parallel or perpendicular to walls, structural members or intersection of vertical planes and ceilings, with right angle turns consisting of symmetrical bends or a pull box as required or indicated on the drawings. Bends and offsets shall be avoided where possible.
- i. Conduits in structural slabs shall be placed between the upper and the lower layers of reinforcing steel, requiring careful bending of conduits. Conduit embedded in concrete slabs shall be spaced not less than eight inches on centers and as widely spaced as possible where they converge at panels or junction boxes. Conduits running parallel to slab supports, such as beams, columns and structural walls, shall be installed not less than 12 inches from such supporting elements. To prevent displacement during concrete pour, saddle supports for conduit, outlet boxes, junction boxes, inserts, etc., shall be secured properly.
- j. Conduits shall be embedded in a concrete blister where conduits are not placed within the slab and where the floor slab is in direct contact with earth. These blisters shall be formed on the bottom of the slab with a minimum of two inches of concrete cover.
- k. Conduit runs shall always be concealed except in electrical and mechanical rooms and where so indicated on plans. Where the floor slab is supported on concrete beams, conduits shall be run under the beams and supported by means of approved standard pipe straps secured to the concrete.
- l. A 200# nylon pull line shall be installed in all empty conduits.
- m. The use of running threads is prohibited.
- n. Where watertight conduit installation is required, watertight conduit unions shall be used.
- o. Where conduits are run individually, they shall be supported by pipe supports listed by Underwriter's Laboratory for intended use. The use of perforated straps or wires is not permitted.
- p. Concrete inserts and pipe straps shall be galvanized. Steel bolts, nuts, washers and screws shall be stainless steel. Individual hangers, trapeze hangers and rods shall be prime coated and painted.

- q. Wire shall not be installed until all work of any nature that may cause damage is completed, including pouring of concrete. Mechanical means shall not be used in pulling in wires 8 AWG or smaller.
- r. Underground conduits not under concrete slabs are to be buried at least three feet below finished grade for circuits rated 600 volts or less, and four feet for circuits above 600 volts. Under traffic areas where motor vehicles may cross, conduits are to be buried as above and PVC conduits are to be encased in concrete extending at least three inches around each conduit.

D. Electrical Supporting Devices:

- 1. Furnish and install all supports, hangers and inserts required to mount fixtures, conduit, cables, pull boxes and other equipment furnished.
- 2. All items shall be supported from the structure portion of the building and studs except standard ceiling-mounted lighting fixtures and small devices may be supported from ceiling system only when permitted by the Engineer. However, no sagging of the ceiling will be permitted. Supports and hangers shall be of a type listed by Underwriter's Laboratories.
- 3. Perforated straps and/or wire are not permitted for supporting electrical devices.
- 4. Anchors shall be of approved types.
- 5. Electrical devices mounted on drywall require rigid and stable backing.

E. Wiring Devices:

- 1. General: Wiring devices shall be specification grade. Cover plates shall be nylon or stainless steel in interior areas except mechanical and electrical rooms where galvanized finish is acceptable. Outside receptacles and switches shall have stainless steel hinges with waterproof gasket covers. Devices shall be rated for current, voltage and phases as applicable for the loads supplied.
- 2. Outlet Boxes:
 - a. Outlet boxes shall be of such form and dimensions as to be adapted to the specific use, location, type of device or fixture to be used, and number, size of conductors, arrangement, size and number of conduits connecting thereto.
 - b. Ceiling outlet boxes shall be four inch octagonal or four-inch square x 2-1/8 inches deep or larger as required for number and size of conductors and arrangement, size and number of conduits terminating at them.
 - c. Switch, wall receptacle, telephone and other wall outlet boxes in plastered walls and exposed masonry walls shall be four inch square x 2-1/8 inches deep. For exposed masonry, provide square corner tile wall boxes or tile rings.
 - d. All outlets shall be mounted so that covers and plates will finish flush with finished surfaces without the use of shims or mats. Plates shall not support wiring devices. Gang switches shall be provided with common cover plate where two or more are indicated in the same location. Wall mounted devices of different systems (switches, thermostats, etc.) shall be coordinated for symmetry when located near each other on the same

wall. Wall switches shall be mounted six (6) inches from door jamb or wall corners.

- e. Height of wall outlets to bottom above finished floors shall be as shown in the symbol list unless otherwise shown on the drawings (refer to architectural and electrical drawings). Outlets, above counter tops or base cabinets, shall be mounted a minimum of two inches from bottom of outlet to counter or backsplash, whichever is highest. Outlets may be raised so that bottom rests on top of concrete block course, but all outlets above counters in the same area shall be at the same height.
 - f. Switches and outlet boxes shall be mounted level and plumb.
 - g. Where boxes are to be mounted on opposite sides of walls, a minimum separation of 12 inches shall be maintained. No through-boxes are permitted.
 - h. Furnish and install floor outlet boxes as shown on the plans. Installation shall be in accordance with the National Electrical Code, and shall be complete with service fittings as indicated. Equipment shall be listed by Underwriter's Laboratories, Inc. Where floor or fill depth is three inches or more, adjustable boxes with maximum vertical and angular adjustment for after concrete pour leveling shall be used. Boxes shall be set and readjusted to provide a smooth surface, conforming to the elevation and slope of the surrounding finished floor. In carpeted areas, flanges shall be installed to protect carpet edges. All assemblies shall be designed and installed to maintain grounding continuity and watertight integrity. Box trim, service fittings and accessories shall be as specified on the drawings. Flush caps removed to install service fittings shall be turned over to the Owner. PVC floor boxes may be utilized in concrete slabs if the fire integrity of the structure is maintained.
- 3. Switches: Toggle type switches shall be silent, specification grade, rated 20 amps, as manufactured by Hubbell, Bryant, General Electric, Watt Stopper, Lutron or Leviton.
 - 4. Receptacles: Ground type NEMA 5-20R specification grade receptacles shall be used except where special receptacles are shown. Receptacles shall be manufactured by Hubbell, Bryant, General Electric, or Leviton.
 - 5. Faceplates: Make a written inquiry to the Engineer to obtain colors for faceplates.

F. Safety Switches:

- 1. Switches shall be manufactured by General Electric Co., Siemens, Cutler Hammer, or Square D. All safety switches shall be totally enclosed, heavy duty, certified to conform to NEMA Standard KS1-1990, Type HD and enclosures shall be suitable for the following applications:
 - a. NEMA 1 - Painted sheet steel - Indoor dry locations.
 - b. NEMA 3-R - Galvanized – Not permitted on exterior of this project.
 - c. NEMA 4 - Stainless - Wet locations, out-of-doors and kitchens.
 - d. NEMA 9 - Cast enclosure - Dustproof.

- e. NEMA 12 - Painted sheet steel - Industrial.
 - 2. Enclosures in non-air conditioned spaces shall be stainless steel NEMA 4 SS.
 - 3. Switches controlling motors shall be horsepower rated.
 - 4. Switch mechanisms must be of the "quick-make, quick-break" type.
 - 5. Switches containing current limiting fuses shall have rejection clips.
- G. Color Coding, Nameplates and Signs:
- 1. Color Coding: Conductor colors shall be in accordance with the NEC and NFPA requirements. Refer also to applicable sections of these specifications.
 - 2. Nameplates: The following items shall be equipped with nameplates: All motors, motor starters, motor control centers, pushbutton stations, control panels, time switches, disconnect switches, switchboards, panelboards, circuit breakers, contactors or relays in separate enclosures, power receptacles, where the nominal voltage between any pair of contacts is greater than 150V, wall switches controlling outlets for lighting fixtures or equipment, where the outlets are not located within sight of the controlling switch, high voltage boxes and cabinets. Special electrical systems shall be identified at junction and pull boxes, terminal cabinets and equipment racks. Nameplates shall adequately describe the function of the particular equipment involved. Where nameplates are detailed on the drawings, inscription and size of letters shall be as shown. Nameplates for panelboards and switchboards shall include the panel designation, voltage and phase of the supply. For example, "Panel A, 277/480V, 3-phase, 4-wire". The name of the machine on the motor nameplates for a particular machine shall be the same as the one used on all motor starters, disconnects and P.B. station nameplates for that machine. Nameplates shall be laminated phenolic plastic, white front and back with black core, with lettering etched through the outer covering, black engraved letters on white background. Lettering shall be 3/16 inch high at pushbutton stations, thermal overload switches, receptacles, wall switches and similar devices, where the nameplate is attached to the device plate. At all other locations, lettering shall be 1/4 inch high, unless otherwise detailed on the drawings. Nameplates shall be securely fastened to the equipment with No. 4 Phillips round-head, cadmium-plated, steel self-tapping screws or nickel-plated brass bolts. Motor nameplates may be non-ferrous metal not less than 0.03-inch thick, die stamped. In lieu of separate nameplates, engraving directly on device plates is acceptable. Engraved lettering shall be submitted with shop drawing submittal for Engineer's approval.
 - 3. Signs: Warning signs shall comply with OSHA requirements and reasonable safety precautions.
- H. Panelboards: Panelboards shall be Square D, General Electric Co. Cutler Hammer, or Siemens with circuit breakers rated for the short circuit values shown in schedules. Directories shall be typewritten.
- I. Service and Distribution: Before bidding, obtain a copy of the power company's layout for the project and coordinate the service thoroughly with the power company.
- J. Lighting:
- 1. Fixtures:

- a. Light fixtures shall be installed using approved fasteners, stems, chains, etc. Plaster rings shall be supplied by the manufacturer where appropriate. Surface mounted fixtures shall show no gaps or sags between surface and fixture. Fixtures shall be installed along straight lines, plumb and level. Fixtures may be connected to suspended ceiling channels in approved manners, but may never be suspended from ceilings tiles.
- b. All interior and exterior light fixtures shall be U.L. listed for application with labels applied at the factory.
- c. Conductors run through fixtures shall be rated for temperatures specified by the fixture manufacturer and shall in no event be rated for less than 90 degrees C.
- d. Fixture enclosures shall be constructed to perform satisfactorily in the opinion of the Engineer in the conditions applicable. Outdoor fixtures shall be sturdy and shall withstand wind and vibration. Outdoor fixtures shall keep water out of lamps, ballasts and wiring compartments.
- e. A complete set of lamps shall be installed in light fixtures throughout the project for final acceptance. Lamps in all public areas are to be rated for 2500 hours minimum.
- f. Fixtures mounted in fire rated surfaces shall be installed with the material composing the surface completely surrounding the back of the fixture. Such fixtures shall be manufactured specifically to handle the resultant build-up of heat without undue lessening of ballast or lamp life, and without tripping thermal elements.
- g. Fixtures shall be constructed to permit lamp replacement from below by one man with no tools. Doors, hinged diffusers, grating, etc., shall be held captive during lamp replacement.
- h. Contractor shall verify all fixture mounting surfaces and/or conditions and order appropriate hardware to comply with the architectural requirements. (CONTRACTOR SHALL VERIFY THE FIXTURE MOUNTING REQUIREMENTS WITH THE CEILING TYPE PRIOR TO ORDERING FIXTURES; i.e. GRID FIXTURES OR FLANGED FIXTURE REQUIRED TO MATCH CEILING TYPE.)

2. Fluorescent Ballasts:

- a. Fluorescent ballasts shall be U.L. listed and rated by the Certified Ballast Manufacturer's Association.
- b. Ballasts shall be solid-state electronic type with a total harmonic distortion of less than 10 percent.
- c. Maximum allowable noise level permitted is to be 24 decibels related to 0.0002 microbar as measured by the Engineer. Ballasts are to be rated by manufacturer as "Class A" noise level.

K. Grounding Systems:

- 1. Provide grounding either as required, or as shown on the plans, whichever is more stringent.

2. All building grounds shall connect to the cold water supply.
3. All building metallic piping systems shall be bonded together.
4. Provide derived ground for all generators, transformers, etc. Derived ground shall be connected to a cold water pipe and the building ground.
5. All grounds and grounding conductors to be provided and installed as required in the National Electric Code, Article 250 and others.
6. Bond all pools, spas, fountains and other wet recreational, decorative or operational devices as required by Article 680, National Electric Code.

L. Telephone Systems: Provide empty conduit with pull line for all telephone systems.

PART 3 - EXECUTION

- 3.1 SUPERVISION: Provide an electrical field superintendent who has had previous successful experience on projects of comparable size and complexity. Superintendent shall be present at all times that work is being installed.
- 3.2 WORKMANSHIP: All materials and equipment shall be installed in accordance with manufacturer's recommendations to conform to these contract documents. Installation shall be accomplished by workers skilled and experienced in the type of work involved, subject to final acceptance by the Engineer.
- 3.3 COORDINATION: The contract drawings indicate the extent, the general location and arrangement of equipment, conduit and wiring. Study the contract drawings, including details, so that equipment shall be properly located and readily accessible. Locate all electrical equipment to avoid interference with architectural, mechanical and/or structural features. Make necessary changes in spacing and location of lighting fixtures, panelboards, cabinets, receptacles, switches, and other items of equipment provided that the overall patterns of layouts are not disrupted and remain uniform. Verify exact location of devices, plates, fixtures, smoke detectors, security items, etc., with applicable elevations, reflected ceiling plans, details, equipment, etc.
- 3.4 CODES AND STANDARDS: Conform with all applicable codes and standards as specified herein. Drawings are schematic and do not necessarily show individual code compliance. Contractor shall provide necessary terminations, connections to equipment, etc., to comply with such codes as part of contract.
- 3.5 OPERATING CLEARANCES: Install all work neatly so as to be readily accessible for operation, maintenance and repair. The contractor shall pay specific attention to working clearances as required in Table 110-16A of the National Electric Code.
- 3.6 PAINTING: Use factory touch-up paint to touch-up all marred factory finishes. If the Engineer judges paint inadequate, complete repainting of such items as panel fronts, fixture frames, etc., may be required at no additional cost to the Owner. Paint all surfaces to match surroundings.
- 3.7 CLEANUP: Maintain a continuous cleanup during the progress of the work and use appointed storage areas for supplies. The premises shall be kept free from accumulations of waste materials and rubbish.
- 3.8 CUTTING AND PATCHING: Cut and prepare all openings, chases and trenches required for the installation of equipment and materials. Repair, remodel and finish in strict conformance with the quality of workmanship and materials in the surroundings. Obtain written permission from the Engineer for any alterations to structural members before proceeding.
- 3.9 MAINTENANCE: Render all necessary measures to ensure complete protection and maintenance of all systems, materials, and equipment prior to final acceptance. The Contractor at

no additional cost to the Owner shall replace any materials or equipment not properly maintained or protected to assure a factory new condition at the time of final acceptance immediately.

- 3.10 WATERPROOFING: Whenever any work penetrates any waterproofing, seal and render the work waterproof.
- 3.11 FIRESTOPPING: When any electrical component (box panel, disconnect, raceway, device, etc.) penetrates or encroaches into an architectural fire barrier, the barrier (wall, floor, ceiling, roof, etc.) shall be fire stopped in a method acceptable to the authority having jurisdiction. Such penetration shall retain the original integrity of the fire barrier. Products or procedures used to obtain this fire stopping must be tested and listed by a nationally recognized testing laboratory such as U.L. or Factory Mutual as complying with the requirements of ASTM-E-119 or ASTM-E-814.
- 3.12 TESTS: Conduct an operating test of equipment prior to Engineer's approval. The equipment shall be demonstrated to operate in accordance with the requirements of these specifications. The tests shall be performed in the presence of the Engineer or an authorized representative. The Electrical Contractor shall furnish all instruments, electricity and personnel required for the tests.
- 3.13 SCHEDULE: Within 15 days after Notice to Proceed, submit to the Engineer a schedule showing the following:
 - A. A breakdown of the electrical work by tasks.
 - B. The sequence in which tasks shall be performed.
 - C. A breakdown of percentage of contract costs as it relates to tasks performed.
 - D. No requisition for payment shall be considered prior to receipt of schedule.

PART 4 – METHOD OF MEASUREMENT & BASIS OF PAYMENT

- 4.1 **General:** Price and payment will be full compensation for all work specified in this Section. The bid price for these items shall include, but not be limited to the manpower, equipment, and material, for the respective items contained within this Section.

Payment will be Made Under:

No Separate Measurement or Payment shall be made for this Item. The cost for the work in this section shall be included on a proportionate basis, in those Sections which include a Pay Item in the respective Method of Measurement and Basis of Payment.

End of Section 16001