SECTION 00 91 10

ADDENDUM NUMBER 1

PARTICULARS

1.01 DATE: NOVEMBER 18, 2020

1.02 PROJECT: ELMORE SPORTS MEDICINE RENOVATIONS

1.03 PROJECT NUMBER: DCM NO. 2020452

1.04 OWNER: ALABAMA A&M UNIVERSITY

1.05 ARCHITECT: NOLA | VAN PEURSEM ARCHITECTS, PC

TO PROSPECTIVE BIDDERS

2.01 THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND MODIFIES THE BIDDING DOCUMENTS DATED OCTOBER 2, 2020, WITH AMENDMENTS AND ADDITIONS NOTED BELOW.

2.02 ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE SPACE PROVIDED IN THE PROPOSAL FORM. FAILURE TO DO SO MAY DISQUALIFY THE BIDDER.

2.03 THIS ADDENDUM CONSISTS OF 25 PAGES.

CHANGES TO THE PROJECT MANUAL

3.01 SECTION 00 10 00-BID DOCUMENTS AND FORMS:

A. Advertisement for Bid:
   1. Replace Advertisement for Bid in its entirety.
   2. Change Bid Date to read, “December 15, 2020”.

3.02 SECTION 00 22 00-OWNER’S SUPPLEMENTARY INSTRUCTIONS TO BIDDERS:

A. Paragraph 1.03.B: Change paragraph to read as follows, “All sealed bids will be received by 2:00 p.m. CST on December 15, 2020 at which time each bidder must submit a sealed envelope properly titled containing the Proposal form, the Bid Bond, Accounting of Sales Tax - DCM Form C-3A form, and Supplement C - List of Alternates. Upon receipt of these documents the bids will be publicly opened and read aloud. Supplement A – List of Subcontractors (section 00 43 21) is to be hand delivered or emailed to the Architect within 24 hours after receipt of bids. No changes to the base bid will be allowed after 2:00 p.m.

3.03 SECTION 08 71 00-DOOR HARDWARE:

A. Hardware Set #01: Remove doors 200.1 and 222.1 from this set.

B. Add Hardware Set #01A to read as follows:
   SET #01A
Doors: 200.1, 222.1

6 Hinges  FBB168 4 1/2 X 4 1/2  US26D  ST
1 Removable Mullion  FL822 x LAR  600  PR
2 Exit Device-Passage  FL 2114 X 4914D SNB (2)  630  PR
3 Rim. Cylinder-Mullion  12E-72 PATD  626  BE
2 Closer  8916 SPA NFHD SN1  689  DM
2 Kick Plate  KO050 8" x 2" LDW B4E CSK  630  TR
2 Wall Bumper  1270CVSV  626  TR
1 Mullion Seal  5100N x LAR  NA
1 Perimeter Gasketing  5050 C x LAR  NA

C. Hardware Set #02:
1. Add door 214.1.
2. Change exist devise to be: Exit Device-Passage  FL 2114 X 4914D SNB (2)
3. Delete Door Silencers
4. Add perimeter Gasketing to read as follows:
   1 Perimeter Gasketing  5050 C x LAR  NA

D. Hardware Set #03:
2. Delete Door Silencers
3. Add perimeter Gasketing to read as follows:
   1 Perimeter Gasketing  5050 C x LAR  NA

E. Hardware Set #05: Delete all Doors and Hardware. Change Set to, “Not Used”.

F. Hardware Set #07: Delete doors 210, 253, 254, and 256 from this set.

G. Add Hardware Set #07A to read as follows:
   SET #07A
   Doors: 256
3 Hinges  FBB179 4 1/2 X 4 1/2  US26D  ST
1 Lockset-Storeroom  45H-7D14H PATD  626  BE
1 Kick Plate  KO050 8" x 2" LDW B4E CSK  630  TR
1 Wall Bumper  1270CVSV  626  TR
1 Perimeter Gasketing  5050 C x LAR  NA

H. Hardware Set #08:
2. Delete doors 251, 252, and 255.

I. Add Hardware Set #08A to read as follows:
   SET #08A
   Doors: 210, 251, 252, 253, 254, 255
3 Hinges  FBB179 4 1/2 X 4 1/2  US26D  ST
1 Lockset-Office  45H-7AT14H PATD  626  BE
1 Kick Plate  KO050 8" x 2" LDW B4E CSK  630  TR
1 Wall Bumper  1270CVSV  626  TR
1 Perimeter Gasketing  5050 C x LAR  NA

J. Hardware Set #09: Delete doors 215, 217, 218, and 219 from this set.

K. Hardware Set #11:
1. Delete Lockset
2. Add Exit Device to read as follows:
   1 Exit Device-Classroom 2108 X 4908D CD SNB (2) 630 PR

L. Hardware Set #13: Change set to read as follows:
   SET #13
   3 Hinges
   FL 2114 X 4914D SNB (2) 630 PR
   1 Exit Device-Passage
   FL 2114 X 4914D SNB (2) 630 PR
   1 Closer
   8916 DS SN1 689 DM
   1 Kick Plate
   KO050 8" x 2" LDW B4E CSK 630 TR
   1 Wall Bumper
   1270CVSV 626 TR
   1 Perimeter Gasketing
   5050 C x LAR

M. Hardware Set #14:
   1. Add Rim Cylinder, Wall Bumper and Perimeter Gasketing to read as follows:
      1 Rim Cylinder 12E-72 PATD 626 BE
      1 Wall Bumper 1270CVSV 626 TR
      1 Perimeter Gasketing 5050 C x LAR

   2. Change Note to read as follows, "NOTE: Existing Doors and Hardware from Doors #200.2, 200.3, 200.4, 200A.1, 200A.2, & 200A.3 are being relocated to Door openings #226.1, 226.2, 226.3, 226.4, 226.5, 226.6."

   3. Add Note: At Door 226.1 provide a Removable Mullion and an additional Rim Cylinder as follows:
      1 Removable Mullion FL822 x LAR 600 PR
      1 Rim Cylinder 12E-72 PATD 626 BE

3.03 SECTION 14 24 00-MACHINE ROOM-LESS HYDRAULIC PASSENGER ELEVATORS:

A. Paragraph 1.03.C.2: Change paragraph to read as follows, "Building Code: International Building Code 2015.

B. Paragraph 1.03.C.5: Change paragraph to read as follows, "2010 ADA Standards for Accessible Design"

C. Paragraphs 1.03.C.7, 1.03.C.8, and 1.03.C.9: Delete these paragraphs in their entirety.

D. Paragraph 1.03.F: Delete this paragraph and its subparagraphs in their entirety.

E. Paragraph 2.01.A: Change paragraph and its subparagraphs to read as follows:
   A. Manufacturer:
      1. Thyssenkrupp Elevator’s endura Machine Room-Less hydraulic elevator (basis of design).
      2. Otis Elevator
      3. Substitutions: See Section 01 60 00 - Product Requirements.

F. Paragraph 2.02.A: Delete paragraph in its entirety.

G. Paragraph 2.08.B: Change paragraph and its subparagraph to read as follows:
      1. Integral ADA phone system.
      2. Passengers with hearing or speech disabilities to easily communicate with a remote emergency person.
      3. Text messages and video to be recorded for liability records.
4. Wide angle camera mounted in the return or cab ceiling, providing encrypted video connection for privacy.
5. Video feed to be able to be access locally from a local communications panel and accessed remotely via cloud services using a standard web browser, only when emergency services are in use.
6. 10-inch LCD display screen, flush-mounted with keypad.
7. Batter backup to provide four hours of system power in an unexpected power loss.

H. Add Paragraph 2.09.F to read as follows:
F. Controller User Interface Tool is to be non-proprietary with unrestricted access.

3.04 SECTION 23 63 23-WATER SOURCE HEAT PUMPS:
A. Replace this section in its entirety.

3.05 SECTION 23 65 10-AIR COOLED CONDENSING UNITS:
A. Replace this section in its entirety.

3.06 SECTION 23 73 12-SPLIT SYSTEM AIR HANDLING UNITS:
A. Replace this section in its entirety.

CHANGES TO THE DRAWINGS

4.01 SHEETS:
   P-1 – PLUMBING FLOOR PLAN
   M-1 – MECHANICAL FLOOR PLAN
   M-2 – MECHANICAL PIPING PLAN
   M-3 – MECHANICAL PIPING PLAN
   M-4 – MECHANICAL DETAILS
   E-4 – ELECTRICAL LIGHTING CONTROLS PLAN,
   E-5 – ELECTRICAL POWER PLAN,
   E-6 – ELECTRICAL EQUIPMENT POWER PLAN,
   E-7 – ELECTRICAL LOW VOLTAGE PLAN,
   E-8 – ELECTRICAL SCHEDULES & RISER DIAGRAM

A. Replace these sheets in their entirety.

END OF ADDENDUM NUMBER 1
ADVERTISEMENT FOR BIDS AND CONTRACTOR PRE-QUALIFICATION

Sealed proposals will be received by Alabama A&M University in Normal, AL at Alabama A&M University, Department of Purchasing – Room 305 Patton Hall, 4900 Meridian Street, Normal, Alabama 35762, until 2:00 p.m. CST December 8, 2020 for

Alabama A&M University
Elmore Sports Medicine Renovations

at which time and place they will be publicly opened and read.

A cashier’s check or bid bond payable to Alabama A&M University in an amount not less than five (5) percent of the amount of the bid, but in no event more than $10,000, must accompany the bidder’s proposal. Performance and Payment Bonds and evidence of insurance required in the bid documents will be required at the signing of the Contract.

Drawings and specifications may be examined at the office of Nola | Van Peursem Architects, PC. 301 Jefferson Street, Huntsville, Alabama 35801; Phone 256-533-6617 after November 13, 2020

Bid Documents may be obtained from the Architect upon deposit of $200.00 per set, which will be refunded in full on the first 2 sets issued to each general contract bidder submitting a bona fide bid, upon return of documents in good condition within ten days of bid date. Other sets for general contractors, and sets for subcontractors and dealers, may be obtained with the same deposit, which will be refunded as above, less cost of printing, reproduction, handling, and distribution.

Only general contractors who have been approved to bid pursuant to pre-qualification procedures and criteria established by the Owner will be eligible to bid the Project. Written pre-qualification procedures and criteria are available from the office of Nola | Van Peursem Architects, PC. 301 Jefferson Street, Huntsville, Alabama 35801.

The deadline for submission of pre-qualification documents has been extended to 5:00 p.m., November 12, 2020.

Bids must be submitted on proposal forms furnished by the Architect or copies thereof. All bidders bidding in amounts exceeding that established by the State Licensing Board for General Contractors must be licensed under the provisions of Title 34, Chapter 8, Code of Alabama, 1975, and must show evidence of license before bidding or bid will not be received or considered by the Architect; the bidder shall show such evidence by clearly displaying his or her current license number on the outside of the sealed envelope in which the proposal is delivered. Alabama A&M University encourages minority owned business participation in the bid process. The Owner reserves the right to reject any or all proposals and to waive technical errors if, in the Owner’s judgment, the best interests of the Owner will thereby be promoted.

Nonresident bidders must accompany any written bid documents with a written opinion of an attorney at law licensed to practice law in such nonresident bidder’s state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts.

Alabama A&M University
(Awarding Authority)

Nola | Van Peursem Architects, PC
(Architect)
SECTION 236323

WATER SOURCE HEAT PUMPS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The contractor shall furnish and install where shown on the plans, packaged water source heat pump units. Sizes, types, and performance shall be as indicated in the unit schedule. Each unit shall be complete with factory furnished components and accessories as shown in the plans and as herein specified.

B. Provide labor, materials, and equipment and services to perform operations required for the complete installation and related work as required in Contract Documents.

1.02 SUBMITTALS

A. Submit catalog data, shop drawings and installation instructions prior to commencement of work for all materials and equipment incorporated into the drawings and specified herein.

1.03 QUALITY ASSURANCE

A. Heat pump performance shall be certified in accordance with ARI/ISO Standard 13256-1 and shall have the correct ARI/ISO and CUL labels affixed to the cabinet. Heat pump performance at scheduled project operating conditions shall be substantiated by computer generated output data.

B. Heat pumps shall be listed by a nationally recognized safety-testing laboratory or agency, such as Underwriters Laboratory (UL), or Electrical Testing Laboratory (ETL), or Canadian Standards Association (CSA).

PART 2: PRODUCTS

2.01 GENERAL

A. Units shall be supplied completely factory assembled, piped, internally wired, fully charged with R-410A, horizontal unit and capable of operating over an entering water temperature range from 45°F to 120°F on standard range models, and 30° to 120°F on extended range models. All equipment must be rated and certified in accordance with AHRI/ISO 13256-1 and must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the US and CAN/CSA-C22.2 NO. 236 for Canada. Each unit shall be ETL, ETLC and CE Listed. Each unit shall be run tested at the factory. The
installing contractor shall be responsible for furnishing and installing Water Source Heat Pumps as indicated on the plans and per installation instructions.

B. Casing and cabinet - The cabinet shall be fabricated from heavy gauge G-60 galvanized sheet metal with interior surfaces lined with 1/2-inch thick, 1.5 lb., coated fiberglass insulation. The insulation shall have a flame spread of less than 25 and a smoke developed classification of less than 50 per ASTM E-84 and UL 723. All fiberglass shall be coated and have exposed edges tucked under flanges to prevent the introduction of glass fibers into the air stream. All insulation must meet NFPA 90A requirements.

C. Filter Rack and Filters - Unit shall have a 1" throwaway filter and a 1" factory-installed combination filter rack/return air duct collar. The filters shall be removable from either side of the unit.

D. Refrigerant Circuit - Units shall have a R-410A sealed refrigerant circuit, which includes a rotary, reciprocating or scroll compressor, thermostatic expansion valve, an aluminum lanced-fin and rifled copper tube refrigerant-to-air heat exchanger, reversing valve, coaxial, tube-in-tube, refrigerant-to-water heat exchanger. The coaxial coil shall be made of a copper inner tube and a steel outer tube and shall be deeply fluted to enhance heat transfer and minimize fouling and scaling. The coaxial coil shall be made have a working pressure of 500 psig on the waterside of the unit and 600 psig on the refrigerant side for all R-410A units. The compressor shall have thermal overload protection.

E. Compressor - The hermetic compressor shall be mounted on compressor manufacturer furnished rubber grommets. The compressor shall be mounted on compressor manufacturer furnished rubber grommets on a mass plate under the compressor. The mass plate shall have a dual material assembly. The top is heavy gauge galvanized steel. The bottom is a viscoelastic isolation material. The isolation material is 1/8" thick, 1 lb./sq. ft. with a barrier layer to improve the sound transmission loss. The assembly reduces absorbs compressor vibration that can be transmitted to the cabinet.

F. Compressor Safety - Safety controls shall include a minimum of 3 safety devices; high refrigerant pressure switch, low refrigerant pressure switch and a low refrigerant suction temperature sensor. The low refrigerant suction temperature sensor shall provide freeze protection for the water coil and the air coil. Refrigerant gauge access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent the compressor from operating via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the unit disconnect switch.

G. Drain Pan - The condensate pan shall be constructed of high density polyethylene (HDPE) plastic to prevent corrosion and sweating. The bottom of the drain pan shall be sloped on two planes to provide complete drainage of water from the pan to meet IAQ requirements. The water source heat pump unit as standard shall be supplied with electronic condensate overflow protection. A mechanical float switch will not be accepted.
H. Fan and Motor Assembly - Unit shall have a direct drive centrifugal fan motor assembly. The fan housing shall have a removable orifice ring to facilitate fan motor and fan wheel removal without removing the fan housing. The fan motor shall be multi-speed, permanently lubricated, PSC type isolated from the fan housing with vibration grommets and internal thermal overload protection. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule.

I. Electrical - A control box shall be located within the unit and shall contain controls for compressor, reversing valve and fan motor operation and shall have either, a 50VA or (optional) 75VA transformer and a terminal block for low voltage field wiring connections. Unit shall be name-plated to accept time delay fuses or HACR circuit breaker for branch over-current protection of the power source. Unit control system shall provide heating or cooling as required by the set points of the wall thermostat. The unit control scheme shall provide for fan operation simultaneous with compressor operation (fan interlock) regardless of the thermostat type. The unit shall be capable of providing an output signal to an LED on the thermostat or to a central monitoring panel to indicate a “fault” condition from the activation of any one of the safety switches. All units shall have a Short-Circuit current rating of 5kA rms symmetrical, 600V maximum.

J. Disconnect Switch - This factory-installed option shall include the addition of a 2 or 3-pole switch mounted on the unit. The switch shall have a lockout/tag out feature. The switch shall be rated to handle the unit only (not to include additional amperage from field installed accessories).

K. Control System - Unit shall have a microprocessor-based control system. The unit control logic shall provide heating and cooling operation as required by the wall thermostat set point. The control system shall provide the following for stand-alone operation:
  1. The use of standard non-programmable or programmable wall thermostats.
  2. Fan operation simultaneous with the compressor (fan interlock) regardless of thermostat logic.
  3. Time delay compressor operation.
  4. Delayed de-energizing of the reversing valve for quiet reversing valve operation.
  5. Compressor short cycle protection of a minimum of three minutes before restart is possible.
  6. Random unit start-up after coming off on unoccupied mode.
  7. Single grounded wire connection for activation of the unoccupied or unit shutdown modes.
  8. Night setback temperature setpoint input signal from the wall thermostat.
  9. Override signal from wall thermostat to override unoccupied mode for 2 hours.
 10. Brownout protection to suspend unit operation if the supply voltage drops below 80% of normal.
 11. Condensate overflow protection to suspend cooling operation in an event of a full drain pan.
 12. Suspended compressor operation upon activation of the refrigerant safety devices.
 13. Cooling operation activated for 60 seconds upon activation of the low suction temperature sensor - defrost cycle.
15. Remote reset - Provides means to remotely reset automatic lock-outs generated by high/low pressure faults and/or low temperature faults.
16. Fault retry clears faults the first two times they occur within a 24-hour period and triggers automatic lock-out on 3rd fault.

L. Unit shall have LED annunciators to aid in diagnosing unit operation by indicating the water source heat pump operating mode and alarm conditions. If there are no current alarm conditions, a green LED on the annunciator board will indicate normal unit operating mode. If an alarm condition exists, the unit controller will send the fault condition to the LED annunciator, which will assist in troubleshooting the unit.

M. Warranty - Manufacturer shall warranty equipment for a period of 12 months from start-up or 18 months from shipping (whichever occurs first).

2.02 BASIS OF DESIGN

A. Model types HFC R-410A CCH or CCW by Daikin Applied.
B. Equal manufacturers are McQuay, Trane, and Carrier.

PART 3: EXECUTION

3.01 INSTALLATION

A. Install equipment in strict accordance with manufacturer's instructions and to as to be compatible with intent of the respective system performance requirements.

B. No field provided apparatus, electrical or mechanical, shall be fastened to the heat pump cabinet with screws, without the prior written approval by the manufacturer's representative.

C. A discrete grounding conductor shall be provided, sized in accordance with the National Electrical Code, for each heat pump unit. The use of conduit or water piping for grounding purposes shall not be allowed.
D. Piping, electrical conduits, lighting fixtures, etc. shall not be located under any ceiling suspended unit, so as to interfere with unit removal for service or replacement.

E. Piping and electrical connections shall be located to eliminate any interference with removal and replacement of the filter.

F. Contractor shall clean each unit of construction dust and debris, and/or, (SELECT ONE OR BOTH)
   1. and install new filters at time of commissioning,
   2. and shall supply to the owner one complete set of spare filters for each unit on the project.
G. Heat pump units shall not be used as “construction heaters” at any time during any phase of construction. Very low temperatures, harmful vapors, gypsum dust from dry wall finishing, may all damage the unit and affect its efficiency and useful service life. Failure to properly protect the unit from construction dirt and debris and from condensation forming within the unit may cause electronic component failure, and void the manufacturer’s warranty.

H. Coordinate installation with work as part of “Control Systems” Section.

I. Manufacturer’s Field Service – Engage the services of factory authorized service technician representative to provide equipment Start Up to verify installation for proper operation and compliance with manufacturer’s recommendations, and to assist the contractor in making adjustments, and to assist in field testing as follows:

1. Inspect for visible damage to casing, coils and internal parts.
2. Inspect for visible traces of refrigerant leaks (oil, etc.) and then leak check.
3. Inspect all electrical connections and torque to manufacturer’s recommendations, both power and control. Verify correctness.
4. Verify that filters are provided as specified and are installed properly.
5. Verify that proper clearances for both operation and servicing have been provided.
6. Verify that the unit has been cleaned of all construction dust and debris.
7. Verify proper fan rotation and v-belt drive alignment and tension where applicable.
8. Start unit according to the manufacturer’s written instructions.
9. Observe initial unit operation to verify suitability for continuous operation for a period of time of sufficient duration to permit system air balancing.
SECTION 236510

AIR COOLED CONDENSING UNITS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work of this section consists of providing all material, labor and equipment necessary for the fabrication and installation of all equipment and appurtenances specified herein and as indicated on the drawings.

    1. 1-5-ton single phase units.
    2. 2 1/2 - 6-ton 3 phase units.
    3. 7 1/2 - 17-ton 3 phase units.

B. Not all the equipment specified herein may be used on this project. Refer to schedules on drawings for equipment requirements.

C. All compressors shall have 5-year warranty.

1.02 SUBMITTALS

A. Submit catalog data, shop drawings and installation instructions prior to commencement of work for all materials and equipment incorporated into the drawings and specified herein.

PART 2 - PRODUCTS

2.01 1-5 Ton Single Phase Units

A. Units shall bear UL label and be certified in accordance with A.R.I. standards. Units shall be pre-charged and be pre-wired ready for final connections.

B. Fan discharge and unit arrangement shall be as indicated on the plans.

C. Units will feature the following as standard: Compressor crankcase heaters, compressor internal overload protection, O.D pressure taps for refrigerant pressure checks, refrigerant service valves and refrigerant filter dryer.

D. Units will feature the following accessories: Outdoor low ambient operation, compressor time delay relay, high- and low-pressure protection and coil guards.

E. Daikin units are specified as requested by owner. Equal manufacturers are Carrier, Trane, and Lennox.

2.02 2 1/2 - 6 Ton Three Phase Units

A. Units shall bear UL label and be certified in accordance with A.R.I. standards. Units shall be pre-charged and be pre-wired ready for final connections.

B. Fan discharge and unit arrangement shall be as indicated on the plans.
C. Units will feature the following as standard: Compressor crankcase heaters, compressor internal overload protection, O.D. pressure taps for refrigerant pressure checks, refrigerant service valves and refrigerant filter dryer.

D. Units will feature the following accessories: Outdoor low ambient operation, compressor time delay relay, high- and low-pressure protection and coil guards.

E. Daikin units are specified as requested by owner. Equal manufacturers are Carrier, Trane, and Lennox.

2.03. 7 1/2 - 20 Tons Three Phase Units

A. Units shall be UL listed, CSA CAN/CSA-C22.2 NO.236-M90 certified and rated in accordance with A.R.I.

B. 7 1/2-ton units shall be single or dual compressor as indicated with a refrigerant filter dryer and both suction and liquid line service valves. Provide high- and low-pressure cutout devices and evaporator defrost control.

C. Condenser coils shall be internally finned or smooth bore 3/8-inch copper tubing mechanically bonded to configured aluminum plate fin. Coils shall be factory pressure tested.

D. Condensing units shall be completely factory wired and tested; control wiring shall be 24 volt. Provide head pressure control for low ambient operation. Provide anti-short cycle timer to prevent rapid on-off compressor cycling. Provide condenser coil guards.

E. 10-20-ton units shall be dual compressor or 2 speed scroll compressors. Dual compressor units shall have dual independent refrigeration circuits with dual integral subcooling circuit. Scroll compressors shall have 2 speed control single refrigeration circuit with temperature and over current protection. Each unit shall be provided with high- and low-pressure cutout devices and evaporator defrost control.

F. Daikin units are specified as requested by owner. Equal manufacturers are Carrier, Trane, and Lennox.

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment shall be installed in accordance with the recommendations of the manufacturer.

B. Refrigerant line sizes shall be determined in accordance with the manufacturer’s recommendations. This contractor is responsible for any changes or accessories required due to the specific requirements of a particular manufacturer. All refrigerant
lines shall be sized by the manufacturer and approved by the engineer prior to any work commencement.

C. Provide and install any accessories necessary for a complete and functioning system.

D. All condensers shall be set on 6" thick concrete slabs for on grade installations. For roof mounted condensers see mechanical prints for details.

END OF SECTION
SECTION 237312

SPLIT SYSTEM AIR HANDLING UNITS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work of this section consists of providing all labor, materials, equipment and services necessary for the fabrication and installation of all equipment and appurtenances in connection with the heating, ventilating and air conditioning work. This includes work as shown on the drawings and as specified herein.

1.02 SUBMITTALS

A. Submit catalog data, shop drawings and installation instructions prior to commencement of work for all materials and equipment incorporated into the drawings and specified herein.

PART 2 – PRODUCTS

2.01 SPLIT SYSTEM AIR HANDLING UNITS

A. General

1. Provide split system air handlers of the type, capacity, configuration, and quantities, as scheduled on the drawings, and specified herein.

2. Air handling units shall be completely factory assembled including coil, condensate drain pan, fan, motor, filters, and controls in an insulated casing.

3. Casings shall be 22-gauge steel with baked enamel finish with internal insulation. Knockouts shall be provided for electrical power, control wiring and refrigerant piping.

4. Blowers shall be centrifugal type, statically and dynamically balanced, with permanently lubricated bearings permanently lubricated, internally protected motors.

5. Evaporator coil shall be aluminum fins mechanically bonded to 3/8" copper tubing. Coil shall be factory pressure and leak tested.

6. Condensate pan shall be double sloped and constructed of stainless steel or plastic.

7. Air handler shall be equipped with fan contactor, single point power entry and 24-volt transformer.

8. Filter Racks shall accept standard size filters. Provide accessible field fabricated racks where manufacturer does not include provisions for filters.

B. 1 to 5 Ton Air Handling Units

1. Fan motor shall be direct drive, multi-speed.

C. Greater than 5 Ton Air Handling Units
1. Fan shall be belt driven.

D. Electric heaters, when specified, shall be UL approved and fabricated to be installed directly on the fan discharge. The heater shall be equipped with high limit controls.

E. Split system air handling units shall be Daikin. Equal manufacturers are Trane, Carrier, and Lennox.

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment shall be installed in accordance with the manufacturer installation instructions and as indicated on the drawings or specified herein.

B. Provide vibration isolators for split system air handling units, rubber in shear for floor mounted models and spring-loaded isolators for horizontally hung units.

END OF SECTION
ELECTRICAL LIGHTING CONTROLS PLAN

- Power Pack
  - NPP16 D ER EFP
  - NPP16 D EFP
  - NPP16 EFP
- Power Pack, Occupancy Controlled, External Fault Protection
  - NPP16 RD SG-EP
  - NPP16 RD SG-EP

- Switch
  - SW1
  - SW2
  - SW3
  - WSX PDT SA XX
  - NCM PDT 9
  - NCM PDT 10
  - NCM PDT 11

- Sensor
  - WSX PDT SA XX
  - NCM PDT 9
  - NCM PDT 10
  - NCM PDT 11
  - Sensor
  - Sensor
  - Sensor
  - Sensor
  - Sensor

- Lens
  - Lens
  - Lens

- Pre-terminated CAT5e cable
  - Pre-terminated CAT5e cable

- Other components and labels as per the diagram.
DUPLEX RECEPTACLE MOUNTED AT MIN. 6'-0" A.F.F. FOR TV POWER.

PROVIDE GFCI TYPE DUPLEX RECEPTACLE, ONE WALL MOUNTED J-BOX RECEPTACLE CONTROLLED BY PLUG LOAD CONTROLLER. SEE LIGHTING CONTROLS.