









# MECHANICAL SPECIFICATIONS

## Section 200500 - General Requirements

- A. General**
- Specifications are applicable to all contractors and/or subcontractors for all mechanical systems in Divisions 01, 20, 21, 22, and 23.
  - This contractor is also referred to the architectural, structural, electrical and all other drawings and specifications pertinent to this project and fully coordinate with all other trades, owner and architect requirements. All of the above mentioned drawings and specifications are considered a part of the contract documents.
  - Conform to all Instructions to Bidders, general and special conditions of contract as specified by architect and/or owner.
  - Refer to "Alternate Proposals" for possible changes affecting the extent of this section of work.
  - Before submitting a bid, each contractor is requested to visit the job site to familiarize themselves with construction condition, check facilities and conditions and make all necessary observations and measurements. Note conditions under which work is to be performed and take all items into consideration in bid. No consideration will be given for his failure to do so.
  - Systems are to be complete and workable in all respects, placed in operation and properly adjusted.
  - Each contractor shall provide for his own clean-up, removal and legal disposal of all rubbish daily.
  - Each contractor shall protect his work, his existing and adjacent property against weather.
  - Each contractor shall protect his work, materials, apparatus and fixtures from damage. Any work damaged by failure to provide protection required, shall be removed and replaced with new material at the contractor's expense.
  - Each contractor must confirm all utility company requirements and connection points in field, prior to starting work. Each contractor shall include cost of utility companies work in his bid.
  - Each contractor must confirm size, location and materials at point of tie in connections in the field prior to rough-in of new work.
  - Arrange for and obtain owner's and insurance representative's permission for any service shutdowns.
  - Each contractor shall be solely responsible for construction means, methods, sequences of construction and the safety of workmen.
  - No piping, ductwork, wiring, etc., shall be installed or routed above or below electrical panels and equipment, through elevator equipment rooms or elevator shafts or stairways unless these items serve these areas only.
  - All contractors shall coordinate with the electrical contractor and obtain a written approval identifying the electrical characteristics of all mechanical equipment prior to ordering of equipment. No additional payment will be made for lack of contractor coordination of electrical characteristics.
  - Each contractor shall include modifying existing conditions to complete the project. During construction the contractors may uncover an existing condition that will have to be modified. Any such work which comes under the jurisdiction of this contractor shall be done by this contractor without extra cost to the owner and project.
  - Work related to the existing building shall be coordinated to minimize interference or interruption of normal building use by the owner. Refer to architectural plans for phasing requirements.
  - Ceiling grid systems shall not be supported from ductwork, heating or plumbing lines or any other utility lines, and vice versa. Each utility and the ceiling grid system shall be a separate installation and each shall be independently supported from the building structure - concrete, steel or masonry. Where interferences occur, in order to support ductwork, piping, ceiling grid systems, etc., trapeze type hangers or supports shall be employed which shall be located so as not to interfere with access to such mechanical equipment as valves, regulators, mixing boxes, fire dampers, etc.
- B. Work Coordination and Scope**
- Each contractor under this division shall familiarize himself with the work to be done under other divisions of this specification and their related drawings and shall so coordinate and schedule his work as not to cause delays or interference with the work of others. Such coordination and scheduling shall accomplish the installation of mechanical and plumbing equipment and piping with a minimum of cutting through masonry and other adjustments.
  - Work included under this division shall consist of furnishing all materials, supplies, equipment, tools, transportation and facilities and performing all labor and services necessary for the complete installation of the mechanical systems of plumbing, fire protection, heating, ventilating, air conditioning, and specialty systems.
  - The contractor under this division shall report discrepancies in the work of others which affect his work. Any changes made necessary by failure or neglect to report such discrepancies shall be made by and at the expense of the contractor of this division. Obtain written instructions for changes necessary to accommodate work of others.
  - The contractor under this division shall be responsible for proper size and location of anchors, chases, recesses, opening, etc., required for the proper installation of his work.
  - The division of responsibility under separate mechanical, fire protection and plumbing contracts for tie-in points shall be as follows:
    - The plumbing contractor shall provide domestic water and gas to within five feet (5'-0") of equipment connection furnished by the mechanical or electrical contractor, final connection by mechanical or electrical contractor. On the water lines, the plumbing contractor shall provide the shut-off valve, check valve, backflow preventer and pressure regulator. On the gas lines, the plumbing contractor shall provide the shut-off valve and pressure regulator.
    - Plumbing contractor shall run the gas, water and sanitary to 5'-0" outside the building or to points as noted on the drawings.
    - Fire protection, plumbing and mechanical contractor shall provide sleeves to the general contractor for placement in floors, walls, etc, and coordinate such location. The plumbing contractor shall be responsible for flashing at vent roof terminals.
    - The fire protection, plumbing and mechanical contractor shall check with the architectural drawings concerning the test borings to determine areas of rock which should be included in his excavation work. Failure to adjust for rock conditions shall not warrant cause for additional compensation.
    - The plumbing contractor shall rough-in and connect all other fixtures and equipment where shown on the drawings but not previously mentioned. Provide with shut-off valves and p-traps with clean-out plug.
    - All motors 1/3 HP and smaller shall be single phase motors, 1/2 HP and larger, shall be three phase motors except where otherwise specified. Thermal overload protection for all motors shall be provided. Combination fused disconnect and magnetic line starters with auto-off-test switch shall be provided for all three-phase motors. Thermal overload relays shall be sized for 115 percent of full load motor current. For motors with VFD, motors shall be inverter duty motors that meets current "MG 1 Part 31" specifications. Motors to have a minimum of 20:1 turn down ratio. Motors over 20 HP shall have shaft ground rings. The installation of all motors, starters and other electrical work under this mechanical division shall be done so as to conform with the National Electric Code. Each motor shall be of squirrel cage type, open-drip proof, normal starting torque, having ball bearings unless otherwise specified. For manufacturers that use PMAC motors, this contractor shall supply VFD's to operate motor.
  - Each contractor shall provide OSHA approved handrail (Guard) system for all roof mounted equipment within 10'-0" of roof edge where the roof edge does not have a 42" high parapet or higher.
- C. Codes, Permits, Standards and Regulations**
- Contractors shall install work in full accordance with rules and regulations of all applicable codes (local, city, county, state, national codes, NFPA, OSHA, etc.), government regulations, utility company requirements, and applicable standards having jurisdiction over premises. This shall include safety requirements of the state department. Do not construe this as relieving contractor from compliance with any requirements of specifications which are in excess of code requirements and not in conflict therewith.
  - Contractors shall secure and pay for all fees, permits, and certificates of inspection incidental to this work required by foregoing authorities. Arrange for all required inspections and approvals.
  - Contractor shall be responsible for payments to all public utilities for work performed by them in connection with provision of service connections required under this division of specifications.
  - Deliver all permits and certificates to architect in duplicate.
- D. Design Drawings**
- The design drawings, as submitted, are diagrammatic and are not intended to show exact location of equipment, piping and ductwork unless dimensions are given. Piping and ductwork are to be installed along the general plans shown on the drawings while conforming to actual building conditions. Each contractor shall confirm all dimensions by field measurement.
  - Before entering into a contract, the successful bidder may be required to submit satisfactory evidence to show that the manufacturer of all parts of the equipment offered have been regularly engaged in the manufacture of such equipment for three (3) years and have not less than three (3) installations of a similar type which have been in successful operation under conditions similar to those specified for not less than two (2) years.
  - All equipment, piping and material specified herein after as shown on the drawings shall be furnished and installed by the contractor, unless specifically indicated to the contrary. Installation shall comply with all required "Building Codes" and "Reference Standards."
  - If this contractor proposes to install equipment requiring space conditions other than those as specified and/or shown on the design drawings, or to rearrange the equipment, he shall assume full responsibility and submit drawings for the rearrangement of the space and shall obtain the full approval of the architect prior to start of any work.
  - The exact locations for fixtures, equipment and piping which is not covered by drawings shall be obtained from the architect or his representative in the field and the work shall be laid out accordingly.

## Section 200500 (cont.)

- Drawings and specifications are intended to supplement one another. Any materials or labor called for in one but not the other shall be furnished as if both were mentioned in the specifications and shown on the drawings.
- E. Base Bid Equipment, Materials and Substitutions**
- All equipment and materials shall be new, free of defects and UL labeled.
  - Base bid manufacturers are included in the specification or listed in schedules on the drawings. All other manufacturers are considered substitution.
  - The name or make of any article, device, material, form of construction, fixture, etc., stated in this specification, whether or not the words "or approved equal" are used, shall be known as a "standard".
  - All cost shall be based on "standards" specified.
  - The equipment schedules on the drawings indicate manufacturer and their equipment model numbers that this design has been based on. Each contractor is required to bid upon the basis of design and furnish the makes specified.
  - Where more than one make or name is mentioned as being acceptable, it shall be understood that only the name or make referring to the manufacturers model numbers or sizes shall be considered the "Specified Standards." It shall be further understood that other makes and names, even though mentioned, have not been checked for detail and that their size and arrangement shall be the contractor's responsibility the same as a proposed substitute item. The use of other manufacturer's equipment that is listed as acceptable alternates that entails general trades, structural, mechanical, electrical, etc., revisions is this contractor's responsibility to provide revisions. Any additional cost of such changes shall be paid by the contractor submitting the acceptable alternates which necessitates changes in installing such submitted alternate equipment, even though such costs may be part of another division of work.
  - Bids concerning the use of substitute products must be accompanied by complete specifications and performance characteristic covering these products. Contractor shall provide all available test data and experience records which may be helpful to the architect in evaluating the quality and/or suitability of alternate products.
  - Contractor is also invited to bid on any other similar products the contractor desires to propose as substitutions, stating any difference in cost (add or deduct from base bid cost) for each proposed substitution on the substitution sheet. If the architect decides to accept any of the proposed substitutions, proper notations thereof shall be made in the written contract. Where several makes are indicated in the specifications and the contractor fails to state that he prefers a particular make in his bid, the owner shall have the right to choose any of the makes mentioned without change in price. No consideration will be given to proposals for alternative products unless submitted with the original bids.
  - Substitutions are subject to the approval of the owner. If a substitution is submitted, it is the contractor's responsibility to evaluate it and certify that the substitution is equivalent in all respects to the base specifications.
  - Contractor is also invited to bid on any other similar products the contractor desires to propose as substitutions, stating any difference in cost (add or deduct from base bid cost) for each proposed substitution on the substitution sheet. If the architect decides to accept any of the proposed substitutions, proper notations thereof shall be made in the written contract. Where several makes are indicated in the specifications and the contractor fails to state that he prefers a particular make in his bid, the owner shall have the right to choose any of the makes mentioned without change in price. No consideration will be given to proposals for alternative products unless submitted with the original bids.
  - Substitutions are subject to the approval of the owner. If a substitution is submitted, it is the contractor's responsibility to evaluate it and certify that the substitution is equivalent in all respects to the base specifications.
  - If substitutions are approved, notify all other contractors, subcontractors, etc., affected by the substitution and fully coordinate with them. Any costs resulting from substitution, whether by this contractor or others, shall be the responsibility of and paid for by the substituting contractor. Approved shop drawings do not absolve this contractor from this responsibility.
  - All equipment shall be installed in full accordance with the manufacturer's data and installation instructions and service clearances. It is this contractor's responsibility to check and confirm these requirements prior to starting of any work.
- F. Warranty**
- Fully warrant all materials, equipment and workmanship and the successful operation of all equipment and apparatus installed by this contractor for one (1) year from date of final acceptance.
  - Extend all manufacturers' warranties to owner, including five (5) year compressor and ten (10) year heat exchanger extended warranty on HVAC equipment to include material and labor.
  - Repair or replace without material and labor charge to the owner all items found defective during the warranty periods. In the case of replacement or repair due to failure within the warranty period, the warranty on that portion of the work shall be extended for a minimum period of one (1) year from the date of such replacement or repair.
- G. Shop Drawing Submittals**
- Submit shop drawings for mechanical, plumbing, fire protection, and control systems; including but not limited to sheetmetal, plumbing fixtures and equipment with adequate details and scales to clearly show construction. Indicate the operating characteristics for each required item. Clearly identify each item on the submittal as to mark, location and use, using the same identification as provided on the construction documents.
  - Sheetmetal and fire protection shop drawings shall be fully dimensioned and coordinated based on field verified building dimensions and clearances and architectural ceiling layouts. Indicate structural systems, lighting, ductwork and piping at all critical locations.
  - Contractor shall review and indicate his approval of each shop drawing prior to submittal for review. Shop drawings will not be reviewed by the engineer unless the contractor's approval is noted. Do not start work or fabrication until shop drawings have been reviewed by the engineer and returned to the contractor.
  - Submittals will be reviewed only for general compliance with the contract documents and not for dimensions or quantities. The architect and engineer will make every effort to detect and correct errors, omissions, and inaccuracies in such drawings, but the failure to detect errors, omissions, and inaccuracies shall not relieve the contractor of responsibility for the proper and complete installation in accordance with the intent of the contract documents. The submittal review shall not relieve the contractor of responsibility for purchase of any item in full compliance with the contract documents or its complete and proper installation.
  - Where submittals vary from the contract requirements, the contractor shall clearly indicate on submittal or accompanying documents the nature and reason for the variations.
  - Each manufacturer or his representative must check the application of his equipment and certify at time of shop drawing submittal that the equipment specified has been properly applied and can be installed, serviced and maintained where indicated on the drawings. Advise engineer in writing with submittal drawings of any potential problems. The manufacturer shall be responsible for any changes that might be necessary because of physical characteristics of equipment that have not been called to the engineer's attention at the time of submittal.
  - Submit a minimum of one (1) print and an electronic "pdf" of shop drawings to the architect. The architect and engineer shall review and return a pdf. The contractor shall distribute copies as required to properly conduct the work, including requirements of the operating manual.
- H. Record Drawings**
- Each contractor or subcontractor shall keep one (1) complete set of the contract drawings and equipment submittals on the job site on which he shall regularly record any deviations or changes from such contract drawings made during construction. All recording shall be done in color ink.
  - These drawings shall record the installed location of all concealed equipment, piping, electric service, sewers, wastes, vents, ducts, conduit, etc., by measure dimensions to each such item from column centerlines or readily identifiable and accessible walls or corners of the building. Plans also shall show invert elevation of sewers and top elevation of all other below-grade lines.
  - Record drawings shall be kept clean and undamaged and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work.
  - After the project is completed, these drawings shall be scanned to an electronic "pdf" format and pdf and hard drawings shall be delivered to the architect in good condition, as a permanent record of the installation as actually constructed.
- I. Supervision**
- The contractor shall have in charge of work at all times during construction a competent foreman or superintendent whose experience and background shall qualify him for the work to be performed under this division. Once assigned, the foreman or superintendent shall be retained until completion of the project and any consideration as to his removal on grounds of incompetence shall either be initiated by or referred to the architect for decision.

## Section 200510 - Basic Materials and Methods

- A. General**
- Provide all materials, labor, equipment, and accessories required to furnish and install the mechanical items identified in this section.
  - This section includes basic mechanical materials and methods to complement other division sections in this specification and requirements indicated on the mechanical drawings.
- B. Interferences**
- Before installing any work, contractor shall see that it does not interfere with clearance required for finish on beams, columns, plasters, walls, or other structural or architectural members, as shown on architectural drawings. If any work is to be installed and it later develops that architectural design cannot be followed, contractor shall, at his own expense, make such changes in his work as architect may direct to permit completion of architectural work in accordance with plans and specifications.
  - Install additional offsets on piping or ductwork where required to obtain maximum headroom or to avoid conflict with other work without additional cost to owner.
  - Report any interferences between work under this division and that of any other contractors to architect as soon as they are discovered. Architect will determine which equipment shall be relocated, regardless of which was first installed, and his decision shall be final.

## Section 200510 (cont.)

- C. Protection of Work and Property**
- The contractor shall be responsible for safeguarding work, property, and facilities against damage, both his own as well as others with which he may come into contact in the performance of his work.
  - Stored materials shall be protected against damage from weather. Pipe, and duct openings shall be closed with caps or plugs during installation. All fixtures and equipment shall be covered and protected against damage. Any materials or equipment damaged at any stage in the construction shall be replaced or repaired. Final completion, all work shall be in a clean and unblemished condition.
  - During construction, all return air ductwork and transfer air openings serving new and existing air handling equipment and/or adjacent tenant spaces shall be protected. Openings which need to remain active shall be covered and protected with MERV 8 filtration media; openings which can remain inactive during construction shall be covered with plastic sheathing and sealed air tight. Filter media shall be replaced regularly as required during construction in order to ensure adequate airflow through all required active openings. In addition, at the end of each phase of construction and at the end of the construction project, all filtration media within each piece of equipment serving the space shall be replaced.
- D. Excavation and Backfill**
- Perform all excavation and backfill required for installation of below-grade piping and ductwork.
  - Excavate as required to install piping at required depth and pitch. Pipe to be laid on sand bedding to give uniform bearing along length of pipe (sand inside building and interlocking aggregate outside building).
  - Backfill with bedding material to a minimum of 12" above top of pipe and compact. Balance of backfill in outdoor grass areas shall be clean earth up to 6" above surrounding grades. Backfill below finished floors shall be sand. Backfill outdoors under paving shall be interlocking aggregate and shall be compacted in maximum 10" layers.
  - All other excavations shall be backfilled with clean earth, excluding rubbish and boulders. Backfill shall be thoroughly tamped and puddled.
  - Patch floor and paving to match existing adjacent surfaces.
  - Backfilling shall not be done until pipe lines are properly tested in the presence of the architect and/or inspection of the government agency having jurisdiction.
  - Control trench soil compaction during construction for compliance with the maximum density specified for the following areas:
    - Building slabs, walkways, roadways, or public thorough-fares: compact top 12" of subgrade and each layer of backfill for fill material at 95 percent density and compact less soil and 90 percent density for cohesive soil material. Tests to be performed by an independent testing service, with the compliance report submitted to the architect.
  - Pipe shall not be laid in water. Furnish all pumping equipment, power, temporary connections, etc., and do all pumping necessary to remove ground or casual water.
  - Where trenches cross roads, walks, or public thoroughfares, provide suitable barricades and bridges adequately protected by signs or red flags during day and lights at night.
  - Repair all streets or sidewalks disturbed at this contractor's expense to recommendations, procedures and satisfaction of architect and authorities having jurisdiction.
- E. Supports and Hangers**
- Hangers and supports are to be provided to properly support, secure and align piping and to meet field conditions and as manufactured by Grinnell, Michigan Hanger or Caddy.
  - All hangers, brackets, clamps, etc., shall be of standard weight steel. Perforated strap hangers shall not be used in any work. When two or more pipes are run parallel, they may be supported on unistrut-type trapeze hangers. Other hangers for pipe 3" in size and smaller shall be clevis. For pipe transporting medium above 150 degrees F and 4" in size and above, use pipe roll. Each hanger is to be sized to include pipe insulation saddle for protection.
  - Where building service lines enter or leave building such as water, sewer, gas, etc., and are installed on filled earth, provide continuous support on a reinforced concrete beam furnished and installed under this division. Support beam on building and with vertical support down to foundation footing and on undisturbed earth at other end. Gas main shall enter building above grade.
  - All vertical piping passing through floors shall be supported at the floor by a vinyl clamp.
  - Isolate all copper lines form ferrous hangers or supports by using foil filler or riser tape.
  - Spacing to comply with ASHRAE standards and code requirements.
- F. Pipe Sleeves, Floor and Ceiling Plates**
- All pipes passing through floors or masonry walls shall be provided with machine-cut schedule 40 pipe steel sleeves. The sleeves shall be so sized to allow at least 1/4" clearance between the inside sleeve wall and the pipe or insulation surface. Sheet metal sleeves shall not be used in this work. Pipe sleeves are to extend 2" above finished floor and sealed. Pipe sleeves are to be full wall thickness and sealed.
  - Unused sleeves shall be plugged and finished to match adjoining surface.
- G. Escutcheons**
- Fit all pipe passing through walls, floors or ceilings in finished rooms with steel or brass escutcheons. Where surface is to receive a paint finish, make escutcheons prime painted; otherwise, make escutcheons nickel or chrome plated. Where piping is insulated, fit escutcheons outside insulation.
- H. Pipe Identification and Tags**
- Identify each pipe, valve and controls in equipment rooms, above accessible ceilings and in accessible shafts.
  - Color code identification bands or marker backgrounds to identify contents of pipe with initials and direction of flow located near each valve and fitting, on both sides of pipe passing through walls and on long runs at not over 20'-0" intervals.
  - At place where pipe is to have marking, covered pipe shall be properly primed with clear lacquer. After marking is applied, coat with lacquer. Apply marking adjacent to valves and equipment at major changes in direction, with pipes passing through walls or floors.
  - Each piece of equipment shall be identified by a number, together with a brief description of its purpose, e.g. "Air Handling Unit - East Lobby." Identification shall be embossed or engraved plastic or stamped brass strips firmly attached to the equipment or adjacent wall at the obvious location. The lettering for such strips shall be not less than 1/2" high.
  - All valves shall be provided with brass numbered tags attached to handle with a brass chain or ring. Wiring of tags will not be acceptable. At the completion of the work, a reproducible valve schedule shall be provided. Three (3) copies of this shall be mounted in metal, glass covered frames where requested by the architect. The schedule shall give a description of the line or equipment controlled; the normal position, emergency and/or shutdown position and location given either by description or diagram.
  - All controls, starters, switches, etc, shall be identified by embossed stencil or engraved plate as to purpose and/or equipment controlled. Control wiring shall be identified with program number and device it services.
- I. Access Panels**
- Each contractor shall be responsible for providing all required access panels necessary for his work. This includes any access panels required for HVAC, plumbing and fire protection. Each contractor shall also provide access panels for any existing conditions as required.
  - Refer to architectural drawings and specifications for type of access panel and coordinate locations prior to any work.
  - Contractor shall mark lay-in ceiling tiles, in a method approved by the architect, where access is required to such mechanical, plumbing, and fire protection equipment, valves, regulators, mixing boxes, fire damper, etc.
- J. Noise and Vibration Isolation**
- Furnish and install vibration isolating mountings to isolate from the structure, by means of resilient vibration and noise isolators, all mechanical equipment over 1 HP having rotating or reciprocating parts. Isolators shall be supplied by a single source, and shall be guaranteed by the manufacturer to provide isolation efficiencies in accordance with this specification. Selection shall be based on equipment supported, power dissipated, frequency, weight distribution and nature of the building structure. Mountings shall be designed to permit attachment to the equipment base or pad and to the structure and shall be selected for uniform deflection allowing for unequal weight distribution.
  - Selection shall be made by the manufacturer of the mountings to provide a transmissibility not exceeding 10 percent. This contractor shall provide inertia pads for equipment where called for on drawings or recommended by the manufacturer of the mountings. These shall consist of reinforced concrete pads of suitable shape, of weight 1-1/2 times the weight of the equipment and provided with weld plates or channels at the corners to which the mountings may be secured.
  - Vibration or noise created in any part of the building by the operation of any equipment furnished and/or installed under this contract will be prohibited, and this contractor shall take all precautions by isolating the various items of equipment, pipe and sheet metal work from the building structure. The major items of equipment shall be isolated as called for on the plans and specified herein. The minor items shall be held the responsibility of this contractor.

## Section 200510 (cont.)

- Mechanical equipment not internally isolated by the manufacturer shall be isolated as follows:
    - Connections from pump outlet and discharge nozzles to piping shall be made with flexible connectors.
    - Isolate each base mounted pump from the piping systems by use of appropriate size corrugated bellows, type 347 stainless steel couplings with control rods as manufactured by Keffex Mig. or flexacons for 300 psig design pressure at 800 degrees F. Design temperature.
    - Centrifugal fans, air conditioning and/or heating and ventilating units up to 3" static pressure on grade shall be mounted on precompressed molded fiberglass, rubber-in-shear, or steel spring isolators. If the drive motor is not supported directly on the fan, both units shall be mounted on an integral structural steel base supplied by the isolator manufacturer, or sufficient rigidity to maintain alignment between the fan and the drive motor. The base shall, in turn be mounted on precompressed molded fiberglass, rubber-in-shear, or steel spring isolators. The fans' isolators shall provide isolation efficiencies as follows:

|   |                      |
|---|----------------------|
| Fan speed over 700 RPM                                | 95 percent           |
| Fan speed between 450 and 700 RPM                     | 90 percent           |
| Fan speed below 450 RPM, fan wheel over 48" diameter  | 80 percent           |
| Fan speed below 450 RPM, fan wheel under 48" diameter | Noise isolation only |
    - Centrifugal fans, air conditioning and/or heating and ventilating units up to 3" static pressure above grade shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolation pads. If the drive motor is not supported directly on the fan, both units shall be mounted on an integral concrete inertia base, supplied by the isolator manufacturer, of sufficient rigidity to maintain alignment between the fan and isolators in combination with precompressed molded fiberglass noise isolation pads. See "C" above for isolation efficiencies.
    - Centrifugal fans, air conditioning and/or heating and ventilating units up to 3" static pressure ceiling suspended shall be mounted on a suitable platform and the platform in turn, suspended by threaded rods from the overhead structure. Resilient hangers incorporating steel springs and precompressed molded inserts shall be incorporated into each supporting rod. See "C" above for isolation efficiencies.
  - Piping and ductwork shall be supported independently of the mechanical equipment and shall be isolated as follows:
    - All suspended piping in the mechanical equipment and air handling rooms shall be supported from the overhead structure by threaded rods incorporating resilient hangers. The resilient hangers shall contain steel springs and precompressed molded fiberglass inserts, designed for static deflections of between 1" and 1-3/4" under operating conditions.
    - All floor supported piping and pipe hangers in the mechanical equipment rooms shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolators, designed for minimum static deflections of 1".
    - Suspended piping entering or leaving mechanical or air handling equipment outside the equipment rooms shall be supported for the first three hangers away from an equipment by threaded rods incorporating resilient hangers from the overhead structure. The resilient hangers shall contain steel springs and precompressed molded fiberglass inserts, designed for static deflections between 1" and 1-3/4" under operating conditions.
    - Floor supported piping entering or leaving mechanical equipment outside the equipment room shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolators, designed for minimum static deflections of 1" for the first three supports.
    - Flexible connections shall be used between air handling equipment and ductwork.
    - All ductwork within the mechanical equipment and air handling rooms shall be suspended with rod and rubber-in-shear hangers.
  - Isolation efficiency shall be based on the lowest operating speed of the supported equipment. The isolator manufacturer shall provide, as a part of his submittal data, and isolating efficiencies for the isolators supporting each piece of equipment. Isolators shall be manufactured by Consolidated Kinetics Corp., 401 Dublin Avenue, Columbus, Ohio, or Mason Industries, Inc., Hollis, New York.
- K. Expansion Joints**
- Expansion joints in piping for heating and domestic water system 2-1/2" and below shall be Flexicraft ML loop stainless steel for steel and copper pipe or Flexiconics model H, stainless steel bellows, internal guides, anti-torque device for steel pipe and end connections to match corresponding pipe construction.
  - Pipe alignment guide to be steel spider (copper clad for copper pipe) housed in a steel sleeve with feet for attachment to structure.
  - Expansion loops shall be provided on all pipe runs over 100 ft in length. Size loop per manufacturer's recommendations or as scheduled.
- L. Miscellaneous Steel**
- Furnish and install all miscellaneous steel required for supports, hangers, anchors, guides, etc., required for installation of equipment and materials furnished and installed under this division.
- M. Painting**
- This contractor shall perform all painting incidental to this work.
  - All painting shall be done with a brush or roller. Spray painting will be prohibited.
  - All finishing materials, thinners, etc., shall be the best quality, first line materials as manufactured by:
    - The Sherwin-Williams Company
    - The Pittsburgh Plate Glass Company
  - All paint materials shall be delivered to the job in the manufacturer's original unopened and labeled containers, and they shall be used strictly in accordance with the manufacturer's directions.
  - This contractor shall submit a list of materials to the architect. The list shall state the branch names of the materials that the contractor intends to use. This list shall be secured from the paint manufacturer and shall be on his stationery.
  - The architect's approval must be secured before any painting work is started.
- N. Clean-Up**
- Insofar as this contract is concerned, at all times keep premises and building in a neat and orderly condition: Follow explicitly any instructions of architect in regard to storing of materials, protective measures, cleaning-up of debris, etc.
  - Upon completion of work, this contractor shall thoroughly clean all apparatus furnished by him, pack all valves and thoroughly clean piping, fixtures and equipment removing all dirt, grease and oil.
  - Air systems shall not be operated without filters. Upon completion of work, replace all filters.
- O. Operating and Maintenance**
- This contractor shall furnish competent personal instruction to the owner's operating personnel for a period of two (2) days in the proper operation of the heating and air conditioning equipment. He shall also supply the owner with copies of an operation manual containing the following:
    - Step-by-step procedures for start-up and shut-down for each system and piece of equipment.
    - Performance data, curves, ratings.
    - Wiring diagrams.
    - Manufacturer's descriptive literature.
    - Automatic controls with diagrams and written description of operation.
    - Manufacturer's maintenance and service manuals.
    - Plumbing fixtures.
    - Spare parts and replacement parts list for each piece of equipment.
    - Name of service agency and installer.
    - Final approved shop drawings.
- P. Roof Curbs (as manufactured by Pate, Roof Products and Systems and Thycurb)**
- Curb shall be 18 gauge galvanized steel with continuous welded seams, wood nailer, counterflashing, R-8 minimum and liner insulation. Top of curb shall be a minimum size as shown in detail on drawings, but not less than 14" above the high point of roof where curb attaches.
  - Provide curb for all roof penetrations of ducts and piping.
  - All cutting and patching of existing roof shall be by the owner's roofing contractor and paid for by the mechanical contractor.
  - Curb shall be installed with top level. Curb base to match roof pitch.

# L|P

2138 N Cleveland Madison Rd  
Akron, Ohio 44328  
1-800-688-2421  
web:lparchitect.com

L|P ARCHITECTURE PLLC  
10000 Woodloch Forest  
Akron, Ohio 44328

2138 North Cleveland (Madison) Road / Akron Ohio 44323  
AIA, NCARB, LEED BPC-C  
1-330-659-3161

Our drawings, specifications and other documents prepared by the firm are the property of the firm and are to be used only for the project and site identified herein. No part of these documents may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written consent of the firm. Liability and other reserved rights. Notwithstanding to whom these documents are furnished, the architect shall not be responsible for any errors or omissions in these documents.



CORPORATE LIC # C-1335

PROJECT NO.:  
DRAWN BY: TBA  
CHECKED BY: TBA  
ISSUED DATE: 03-11-2022

| ISSUED REVISIONS: |
|-------------------|
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |

701 West Trade Street  
Dallas, NC 28034  
Penn Station  
MECHANICAL SPECIFICATIONS



# M300



## MECHANICAL SPECIFICATIONS (cont.)

- Insulate all refrigerant suction and hot gas lines with 1" elastomeric foam insulation, C = 0.24 with joints and seams sealed vapor tight. Insulation outside shall be painted with two coats of protective coatings per manufacturer for protection to weather (as manufactured by Aeroflex, Armoceil, or K-Flex).

### Section 211000 - Fire Protection Systems

- A. General**
- Furnish all labor, materials and equipment as required to install a complete fire protection system for project.
  - Field-verify sizes and location of existing sprinkler piping before fabrication of new.
  - This contractor shall be responsible for the removal and reinstallation of existing ceiling tiles, as required, for the installation of work shown in areas where existing ceilings are to remain. See architectural drawings for areas where existing ceilings are to remain.
  - This removal and reinstallation of existing lay-in ceiling tiles shall be the responsibility of the fire protection contractor (under the supervision of the general contractor) as required to perform his work. Any damage to existing ceiling tiles or supports shall be the responsibility of the general contractor. Ceiling tiles may be left out of the ceiling areas under construction only if stored in areas as directed by the owner so as not to hinder the daily operations of the building's occupants.
  - This contractor shall modify and relocate sprinkler piping and provide new sprinkler piping and heads, as required, to accommodate new mechanical work in full compliance with NFPA 13. This contractor shall also perform hydraulic calculations for sprinkler piping in the remodeled areas in accordance with NFPA 13.
- B. Design Basis**
- Design basis for system shall be per NFPA 13 (latest edition) building code requirements, local water department, local fire department, state fire marshal, local code, and owner and owner's fire insurance underwriter requirements.
  - System shall be hydraulically calculated as required by code.
  - Pipe sizes indicated on drawing are approximate and shall be verified per the contractor's hydraulic calculations.
- C. Drawings and Calculations**
- Contractor shall prepare submittal drawings and hydraulic calculations with a 10% factor of safety for building in accordance with owner's insurance company building department, and local fire authority requirements, tenant's requirements for design density, whichever is most stringent.
  - Contractor shall perform a flow test data on water main and submit data with calculations.
  - It is the fire protection contractor's responsibility to verify each tenant's design density with agreed upon lease documentation and that tenant's prototype or insurance underwriters requirements.
  - Provide wet standpipe system for project in accordance with NFPA 14 requirements.
  - Contractor and designer shall be state certified.
  - Coordinate layout and installation of sprinklers with ductwork and equipment above ceilings and other construction that penetrates ceilings, including but not limited to light fixtures, speakers, HVAC equipment, doors and partition assemblies. No sprinkler piping shall be routed beneath equipment above any ceilings that must be dropped directly down for service, repair, or replacement.
  - Examine areas and conditions under which fire protection materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer. Schedule rough-in installations with installations of other building components.
  - Shop drawings review does not relieve fire protection contractor from responsibility to meet each tenant's requirements for sprinkler coverage.
  - Fire protection contractor is responsible for verifying any high pile storage requirements of future tenants and providing an incoming sprinkler service size and risers to meet the requirements for adequate sprinkler coverage.
- D. Piping**
- All piping shall be installed in accordance with NFPA 13, 14 (latest edition) and local code requirements.
  - Fire protection piping shall be as follows:
    - Below-grade outside building - ductile iron, cement lined. Class of pipe as directed by local water purveyor with mechanical or push-on type joints.
    - Inside building - pipe and tubing shall be steel or copper in accordance with NFPA requirements.
    - Piping shall match existing building standards.
    - Contractor shall arrange with owner and insurance underwriter prior to shut down of existing systems.
    - Flush all piping upon completion of project and test per NFPA requirements.
    - No piping shall be installed at locations subject to freezing.
  - Excavation and backfill - see Section 200510, Basic Materials and Methods.
- E. Sprinkler Heads**
- Sprinkler heads shall be UL listed, match existing building standards and be manufactured by Central, Star or Viking.
  - Sprinkler heads shall be as follows:
    - Areas with exposed structure
    - Areas with ceilings
  - Upright - rough brass.
    - Areas with ceilings
  - Recessed Pendant - chrome plated with matching two (2) piece, flush escutcheon.
  - Concealed - brass finish with off-white ceiling cover plate.
  - Sidewall - chrome plated with off-white, two (2) piece, semi-recessed escutcheon.
  - Install concealed heads with white flush mounted cover plate in (sales area).
  - Install higher temperature sprinkler heads where required by code or application.
  - Sprinkler heads shall be located in the center of ceiling tiles or the center of an area of a 24" x 24" tile section. See architectural reflected ceiling plans.
  - Submit samples of sprinkler heads to architect prior to fabrication of any piping.
  - Install inspector's test connection with valve and terminate drain through exterior wall with text fitting and splash block.
- F. Valves**
- Install all valves as required by NFPA 13, UL or FM listed and as manufactured by Grinnell, Hammond or Milwaukee.
  - All shut-off valves shall be fitted with tamper switches by fire protection contractor and wired by electrical contractor. Tamper switches shall be as manufactured by Notifier, Potter or Viking.
  - Install flow switch in riser as manufactured by Notifier, Potter or Viking and wired by electrical contractor.
  - Install UL listed alarm check valve with all required trim, including water motor alarm bell and drains as manufactured by Central Star or Viking.
  - Install wall mounted indicator valve as manufactured by Potter Roemer, Croker or Elkhart and approved by local authorities.
  - Install double check detector assembly backflow preventer, as required by local water purveyor and as manufactured by Watts, Zurn or Conbraco.
- G. Extra Materials**
- Valve wrenches: Furnish to owner, 2 valve wrenches for each type of sprinkler head installed.
  - Sprinkler heads and cabinets: Furnish 2 extra sprinkler heads of each style included in the project. Furnish each style with its own sprinkler head cabinet and special wrenches.
  - Obtain receipt from owner that extra stock has been received and give architect a copy of this receipt.

### Section 224000 - Plumbing Fixtures and Equipment

- A. General**
- Furnish all fixtures and equipment indicated and scheduled on drawings, complete with all accessories, controls, etc., as required.
  - Provide factory-fabricated fixtures of type, style and material indicated. For each type fixture, provide fixture manufacturer's standard trim, carrier, seats and valves as shown by their published product information and indicated in the plumbing fixtures schedule; either as designed and constructed or as recommended by manufacturer and as required for complete installation. Where more than one type is indicated, selection is Installer's option, but all fixtures of same type must be furnished by single manufacturer. Where type is not otherwise indicated, provide fixtures complying with governing regulations.
  - Where fittings, trim and accessories are exposed or semi-exposed, provide bright chrome-plated or polished stainless steel units. Provide copper or brass where not exposed.
  - Water Outlets: At locations where water is supplied (by manual, automatic or remote control), provide commercial quality faucets, valves or dispensing devices of type and size indicated and as required to operate as indicated. Include manual shut-off valves and connecting stem pipes to permit outlet servicing without shut-down of water supply piping systems.

### Section 211000 (cont.)

- Water Hammer Arrestors: Provide water hammer arrestors where shown on the drawings and as required to prevent water hammer and excessive vibration in the domestic water system. Arrestors to be of size indicated or as recommended by the manufacturer.
  - P-Traps: Include removable P-traps (with clean out plug) where drains are indicated for direct connection to drainage system.
  - Carriers: Provide cast iron supports for fixtures of either graphitic gray iron, ductile iron or malleable iron as indicated.
  - Escutcheons: Where fixture supplies and drains penetrate walls in exposed locations, provide chrome-plated sheet steel escutcheons with friction slips.
  - Aerators: Provide aerators of types approved by Health Department having jurisdiction.
  - Comply with additional fixture requirements contained in fixture schedule on drawings.
- B. Backflow Preventer**
- Provide reduced pressure backflow preventer consisting of assembly including abutting shutoff valves on inlet and outlet, and discharge funnel. Backflow preventer shall include a minimum of four (4) test cocks and pressure-differential relief valve located between two (2) positive seating check valves. Backflow preventer and shutoff valves shall be the same size as the upstream pipe.
  - Backflow preventers sizes 2" and smaller shall have NPT connections, be of bronze body construction with bronze ball type shut-off valves as specified in Section 200523 and test cock and bronze body relief valves with stainless steel trim.
  - Complete backflow preventer assembly shall be rated to 150 psi working pressure and water temperature range from 32° F to 140° F.
  - Provide each backflow preventer with a drain funnel furnished by the manufacturer. Extend drain from funnel to nearest floor drain.
  - Backflow devices must meet ASSE Standards 1013, 1015 and 1020 and shall be tested at the time of installation by a person certified by the Ohio Department of Health. The plumbing contractor shall pay for all costs associated with this test.
  - Manufacturer: Subject to compliance with requirements, provide backflow preventers of one of the following:
    - Cia-Val Company
    - Conbraco Industries, Inc.
    - Febco Sales, Inc., Sub. Of Charles M. Bailey Co., Inc.
    - Hersey Products, Inc.
    - Watts Regulator Company

### Section 230900 - Instrumentation and Controls

- A. General**
- Furnish and install complete temperature control for all HVAC systems.
  - Provide new control devices including thermostats, humidistats, damper operators, motors, temperature sensors, staging relays, and other related devices for a complete operational system per the operating sequence and industry standards.
  - Mount all controls furnished as accessories to equipment and provide all control wiring required for proper operation. All wiring shall be in conduit per N.E.C. and local code requirements.
  - Mechanical contractor shall install all duct-mounted smoke detectors. Electrical contractor shall furnish and wire photo-electric duct smoke detectors at each unit to shut down fan upon activation. Detector shall be located in the supply/return air duct downstream/upstream of the unit connection. Detector will have manual reset and will activate a local alarm panel.
- B. EXHAUST FANS**
- Toilet Room Exhaust Fan (EF-1)
    - Interlock fan with light switch to operate when lights are turned on (interlocking wiring) by electrical contractor.
- C. ROOFTOP UNITS**
- Gas Fired Rooftop Unit (RTU-1 & 2)
    - Wall mounted thermostat shall sequence heating and cooling. Provide with sub-base to manually select heating, cooling, fan on-off, auto operation.
    - Unit shall operate in occupied or unoccupied modes based upon time clock sequence as determined by owner.
    - Unoccupied mode - The supply fan will be off, the outdoor air damper will go to 100% closed position and unit will cycle on with a call for heating or cooling.
    - Occupied mode - The supply fan shall run continuously, the outdoor air damper will open to the minimum air position and the unit will go into the heating or cooling mode, based upon room thermostat setpoint temperature.
    - Upon a call for cooling, and the outdoor air temperature is 55 degrees F. (adjustable) or cooler, the unit shall go into economizer mode. If the outdoor air temperature is greater than 55 degrees F. (adjustable), the outside air damper shall go to minimum position, and the compressors will be energized.
    - Upon a call for heating, the gas burner shall fire.
    - A low temperature thermostat will de-energize the supply fan and close the outside air damper if the mixed air temperature is sensed at 40 degrees F or colder.
    - A duct mounted, photoelectric smoke detector (furnished by electrical contractor and installed by mechanical contractor) shall shut down the unit, close the outside air damper and send a signal to the fire alarm panel when activated. Both safeties will require manual reset, and will activate an alarm at the local control panel.

### Section 233000 - Air Distribution Systems

- A. General**
- Furnish all materials, labor, equipment and accessories required to install complete air distribution systems.
  - Contractors bidding this project shall visit this site and familiarize themselves with all condition affecting their work. Submission of a bid on this project shall be construed as having such knowledge.
  - Verify exact conditions in field and coordinate with these drawings and other trades before beginning new work.
  - Determine exact locations for all new and relocated ductwork and accessories in field.
  - Coordinate work of this contract with other trades.
  - Any discrepancies between what is shown on drawings or specified and the actual conditions in the field shall immediately be brought to the attention of the architect before proceeding.
  - Building and surfaces damaged during installation shall be repaired, replaced, and/or restored to original condition after completion of work and before acceptance by owner.
  - This contractor is also referred to the appropriate mechanical and plumbing specification sections the items of equipment to be bid as a part of this project.
- B. Ductwork**
- Fabricate and erect all ductwork to ASHRAE and SMACNA standards from galvanized steel. Comply with NFPA 90A requirements.
  - Ductwork shall be SMACNA low pressure construction 2" static pressure rating with Seal Class B seams and joints, unless otherwise noted.
  - Include all acoustic, airfoil shaped perforated aluminum turning vanes, manual dampers, flexible connectors, grilles and diffusers, acoustic lining, and other sheet metal accessories for the project.
  - Changes in direction, in low velocity supply air rectangular ductwork, shall be made with full radius elbows with radius equal to 1 1/2 times the horizontal width of the duct, or with square elbows with turning vanes. Turning vanes shall be constructed of the same material as the surrounding ductwork and two (2) gauge numbers heavier.
  - Furnish and install all manual balancing dampers, splitter dampers, extractors, and deflectors required to properly distribute the air. All dampers, extractors and deflectors shall be constructed of the same material as the surrounding ductwork, unless noted otherwise on the drawings. All manual balancing dampers shall be the opposed blade type.
  - Furnish and install all automatic control dampers unless noted otherwise on the drawings, all control dampers shall be opposed blade type and shall have leakage of less than 1 percent when closing against 4" water column static pressure and when sized for 2000 fpm velocity.
  - All manual balancing dampers, splitter dampers, extractors and deflectors shall be controlled by Young No. 1 or Ventilock No. 688 regulators. If ductwork is accessible, mount the regulator on the ductwork. If ductwork will be inaccessible after the installation of the ceiling or walls, mount the regulator in a steel, flush mounted box specifically designed for this purpose. Provide all linkage, top bearings and/or gear drives required for the remote installation of the regulator.
  - All branch connection fittings in rectangular ductwork shall be 45 degree transition type, conical fittings or spin-in fittings with integral air scoops. Butt fittings are not acceptable.
  - Exhaust duct outlets shall be installed a minimum of 10'-0" from all outside air intakes.
  - Kitchen hood exhaust duct shall be minimum thickness .060" black steel with liquid-tight welded joints, where concealed, and of 18-Ga. minimum stainless steel where exposed. Install per local code and NFPA 96 requirements. Maintain 18" clearance from duct to combustibles.
  - Alternative design: Furnish double wall, zero clearance to combustibles, factory built grease duct for use with Type 1 kitchen hoods, which conform to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 and UL-2221 for venting air and grease vapors from commercial cooking operation. The duct sections shall be constructed of an inner duct wall and an outer duct wall with insulation between. Duct shall be CaptiveAir DW-2R or approved equal. Install per manufacturers instructions.

### Section 230900 (cont.)

- C. Drain Pans**
- Install 2" deep secondary drain pan below all furnaces and domestic water heaters. Pipe 3/4" drain to floor drain independently off all the other drains.
- D. Duct Liner**
- Acoustic line all rectangular ducts indicated on drawings with 1" thick non-flaking, coated medium density liner, apply to manufacturer's recommendations.
  - Duct dimensions indicated on drawings are clear inside dimensions (free area).
  - Duct liner shall comply with NFPA 90A and 90B (latest edition) requirements.
- E. Duct Accessories**
- Flexible ductwork (as manufactured by Cleveflex, Flexmaster or Wiremold).
    - Flexible ducts shall be independently supported from the structure and connected with plastic draw bands and tightened. Flexible ducts shall be limited to 48" maximum straight length. Flexible ducts shall be constructed of 1 1/2" insulation with vinyl vapor barrier jacket and rated at 10" W.C. for sizes though 12", UL listed, and meet 25/50 flame and smoke test. Flexible ducts are not permitted in rooms without ceiling.
  - Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
    - Fabricate in accordance with SMACNA Standards. Provide end bearings and locking, indicating quadrant regulators. Blade to be single thickness with continuous hinge or rod.
  - Backdraft Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
    - Multiple blade, parallel type damper constructed of galvanized steel with felt or flexible vinyl sealed edges, ball bearings, pivot pin and adjustment device for varying pressures.
  - Access Doors (as manufactured by Ruskin, Nailor or Safe-Air)
    - Fabricate in accordance with SMACNA standards. Doors to be fabricated of galvanized steel with sealing gasket and quick locking device.
    - For insulated ductwork, doors shall have minimum 1" insulation with sheet metal cover.
- F.** High efficient boilers and domestic water heaters shall have stainless steel or PVC combustion air intakes and flue gas outlets as recommended by the equipment manufacturer.
- G.** Domestic water heater flues shall conform to the specification for low pressure ductwork.
- H.** All grilles, registers, diffusers and louvers shall be of the sizes, type, etc., as shown on the plan and schedules.
- I.** Grilles, registers, louvers and diffusers as manufactured by Krueger, Anemostat or Titus Company will be considered provided dimensions, capacities, construction and sound characteristics are compatible and so shown by shop drawings and performance specifications. All grilles, registers and diffusers shall be finished a color as selected by the architect.
- J.** Furnish and install all hoods and hood exhaust ductwork. The construction of the hoods and hood exhaust ductwork shall be as indicated on the drawings.
- K.** Centrifugal roof exhaust fans, intake, and relief vents as manufactured by Loren Cook or Greenheck will be considered provided size, performance ratings and dimensions are compatible and so shown by shop drawings and performance specifications.
- L.** Roof mounted equipment shall be supported using Pate curbs.

### Section 235000 - Heat Generation Equipment

- A. General**
- Furnish all material, labor, equipment, and accessories as required to install equipment as indicated on mechanical drawings.
  - Install in full accordance with local code requirements, other specification section requirements, and manufacturer recommendations.
- B.** See equipment schedules on mechanical drawings.

### Section 236000 - Refrigeration Equipment

- A. General**
- Furnish all material, labor, equipment, and accessories as required to install equipment as indicated on mechanical drawings.
  - Install in full accordance with local code requirements, other specification section requirements, and manufacturer recommendations.
- B.** See equipment schedules on mechanical drawings.

### Section 237000 - HVAC Systems and Equipment

- A. General**
- Furnish all equipment, material, labor, tools, etc., for the complete HVAC system. Install complete and place in operation.
  - Contractors bidding this project shall visit this site and familiarize themselves with all conditions affecting their work. Submission of a bid on this project shall be construed as having such knowledge.
  - Verify exact conditions in field and coordinate with these drawings and other trades before beginning new work.
  - Determine exact locations for all new and relocated equipment, piping, conduits and ductwork in field.
  - Coordinate work of this contract with other trades. Conflicts shall immediately be brought to the attention of the architect. Architect's resolution to conflicts shall be final.
  - Any discrepancies between what is shown on drawings or specified and the actual conditions in the field shall immediately be brought to the attention of the architect before proceeding.
  - Building and surfaces damaged during installation shall be repaired, replaced, and/or restored to original condition after completion of work and before acceptance by owner.
- B. Equipment**
- Mechanical contractor to furnish all HVAC equipment indicated and/or scheduled on the drawings complete with bases, isolators, supports and other required accessories.
  - Install complete and place in proper operation per manufacturer's recommendations, lubricate and adjust as required. Furnish and install clean set of filters prior to balancing.
  - Equipment to be make and model as scheduled unless alternate equipment of equivalent quality and performance is submitted as a substitution prior to bidding. All substitutions are subject to acceptance without qualification by owner, engineer and architect.
  - Contractor shall perform routine service inspection of all existing HVAC equipment to remain. Lubricate bearing, service control systems, replace fan belts and install new filters in each rooftop unit.
  - Contractor shall field verify refrigerant charge and add refrigerant if the charge is less than manufacturer's specifications.
  - Submit service report to any major component failures or malfunctions. Report shall include cost to service all malfunctioning or damaged items listed. Cost shall include parts and labor. Equipment shall be placed in full operation with controls calibrated upon completion of project.
- C.** See equipment schedules on mechanical drawings.

# L|P

2138 N Cleveland Massillon Rd  
Akron, Ohio 44329  
1-330-688-2341  
www.lppartners.com

L|P ARCHITECTURE PLLC  
Full Service Architecture  
AIA, NCARB, LEED BDC-C  
1-330-688-2341

2138 North Cleveland Massillon Road // Akron Ohio 44329  
1-330-688-2341

L|P ARCHITECTURE  
Drawings, specifications and other documents prepared by the  
firm are the property of L|P ARCHITECTURE PLLC. The contractor shall  
maintain them in strict confidence and shall not reproduce them for  
any other project without the prior written consent of L|P ARCHITECTURE  
PLLC. Liability and other reserved rights. Includes copyright.



CORPORATE LIC # C-1358

PROJECT NO.:  
DRAWN BY: TBA  
CHECKED BY: TBA  
ISSUED DATE: 03-11-2022

ISSUED REVISIONS:

△  
△  
△  
△  
△  
△  
△

701 West Trade Street  
Dallas, NC 28034

Penn Station  
MECHANICAL SPECIFICATIONS

M302

