MECHANICAL OUTLINE SPECIFICATIONS

1. Section 15010 - Basic Mechanical Requirements

- A. The work of each of the mechanical sections includes furnishing and installing the material, equipment, and sustems complete as specified and/or indicated on the drawings. The mechanical installations, when finished, shall be complete and coordinated, ready for satisfactory service of the building.
- All work under this contract shall be done in strict accordance with all applicable municipal, state, NFPA BOCA codes and County Public Work, that govern each particular trade.
- C. The contractor shall make applications and pay all charges for all necessary permits, licenses and inspections as required under the above codes. Upon completion of the work, the customary certifications of approval shall be furnished.
- D. No materials or equipment shall be used in the work until approved. Before submission of the shop drawings, and not more than fifteen (15) days after award of the contract, the contractor shall submit for approval a complete list of materials and equipment which he intends To furnish, giving manufacturer and catalog
- The contractor shall examine all drawings and specifications and shall. Failure to comply with this requirement will not relieve the contractor of responsibility for complying with the intent of the contract documents.
- F. The drawings indicate the general arrangement of the mechanical installations. Details of proposed departures due to actual field conditions or other causes shall be submitted for approval prior to installation. Reworking of completed items due to improper field coordination shall be at the contractor's expense.
- 6. Provide sufficient access and clearance for all items of equipment requiring servicing and maintenance, such as valves, drains, vents, etc...
- H. The contractor shall prepare three (3) copies of a record and information booklet. The booklet shall be bound in a three-ring loose-leaf binder. Provide the following data in the booklet:
- Catalog data on each piece of equipment furnished. 2) Approved shop drawings on each piece of equipment
- 3) Maintenance, operation and lubrication instruction on each piece of equipment furnished.
- 4) Simplified temperature control diagram. 5) Manufacturer's and contractor's quarantees.
- 6) Air balancing reports.
- 7) Commissioning reports. 8) Schedule/descroption of all service work/maintenance Inspections required by paragraphs P, Q and R of this
- I. The entire new plumbing system shall be tested hudrostatically before insulation covering is applied
- and proved tight under the following gauge pressures: Sanitary and vent piping As specified below Natural gasloo psig Fire protection..... Per NFPA
- J. All sanitary and vent piping shall be tested by the contractor. The entire new drainage system and ventino system shall have all necessary openings plugged and filled with water to the level of ten (10) feet above the main or branch being tested. The system shall hold this water for thirty (30) minutes without showing a drop greater than four (4) inches.
- Note: If any code or public utility requires testing which is different than the test listed above, the more stringent test shall be performed.
- K. All parts of the heating, ventilating, air conditioning and exhaust Systems shall be adjusted, checked, balanced and tested by an independent A.A.B.C. certified testing # balancing contractor approved by the owner. The contractor shall put all systems and equipment into full operation, and shall test and balance all devices to within ten (10) percent of capacities indicated on the drawings. Submit copies of the balancing reports as required by the contract. Permanently mark the position of each balancing damper and valve.
- Upon completion of the mechanical installations, the contractor shall provide a complete set of prints of the mechanical contract drawings which shall be legibly marked in red pencil to show all changes and departures of the installation as compared with the original design. They shall be suitable for use in preparation of record drawings.
- M. All piping systems shall be identified with labels. Materials shall be as manufactured by seton name plate
- N. All mechanical installations, including all materials and labor shall be quaranteed for a period of one (1) year from date of owner acceptance. The above shall not In any way void or abrogate equipment manufacturer's quarantee or warranty. Certificates of guarantee shall be delivered to the owner.
- O. After roughing in the entire water main with future stubs the entire potable water systems shall be disinfected prior to use. The method to be followed shall be that prescribed by the local health authority/code requirements.
- P. Contractor shall also provide one (1) year free service to keep the equipment in operating condition. This service shall be provided per the following schedule and rendered upon request when notified of any equipment malfunction.
- Q. In addition to the first year warranty period, the contractor shall provide, at no additional cost to the owner, a minimum of four (4) service calls and maintenance inspections. A complete outline of the required maintenance and the proposed schedule shall be included in the "record and information booklet" detailed in section 15010-basic mechanical requirements, paragraph I, for review and acceptance by the owner/representative and engineer. The inspections are to be performed at three (3) month intervals for a total of four (4) service calls and inspections during the first year warranty period (three (3) times during the year plus the original system start-up commissioning).
- The service work and inspections shall include, but not be limited to the following:
- Replace all disposable air filters; - Lubricate all motor and fan bearings as required; Clean condensate drain lines; Check and tighten all electrical connections;

- Inspect all belts for adjustment and condition and replace
- Inspect and clean all water strainers; - Check operating pressures and refrigerant charge; - Inspect all controls for correct operation and calibrate as reavired; - Perform all maintenance as outlined in the equipment

manufacturers operation and maintenance manuals.

- Upon completion of each scheduled inspection, the contractor shall deliver to the building owner/owner's representative within forty-eight (48) hours of completion, two (2) copies of the completed inspection report for record purposes.
- R. The mechanical or service contractor shall, at the ninth month, advise the owner of the termination date of the above service. This contractor shall also provide the owner with a detailed proposal, reflecting annual escalation, for the continuation of the service and inspections described above.
- 2. Section 15050 Basic Mechanical Piping Material & Methods
 - A. Provide all labor and materials necessary to furnish and install all piping systems on this project, including sanitary, sanitary vent, domestic water, refrigerant piping and condensate drain.
 - B. Piping and valves shall be as follows:
 - Sanitary drains below grade

Standard weight cast iron uncoated bell and spigot soil pipe

Standard weight cast iron bell and spigot uncoated soil pipe fittings.

Two piece body, 150 lb. chrome plated

Type DWV seamless copper tubing

Wrought copper solder drainage

Schedule 40 black steel

Class 150 welding neck NIBCO

Gate valves 2" and smaller shall be bronze solid wedge

Convoluted flange #271 or approved equal

union bonnet, threaded ends rising stem

Long radius welding

NIBCO #T-174-A.

regulations and as hereinafter specified.

manufacturer's initials and pipe classifications.

drawn, with approved solder fittings.

6) Fire protection: piping and fittings as required by NFPA

D. Cast iron piping shall be service weight drainage piping and

Steel piping shall be similar and equal to national tube

F. All hangers for copper piping shall be copper clad, split

threaded copper clad ceiling flange. Cast iron and

steel piping supports shall be similar without copper

6. Provide dielectric couplings where non-ferrous metal

material shall be capable of withstanding the

piping is joined to ferrous metal piping. The gasket

temperatures and pressures within the piping system in

A. All supply/return (existing/new) ductwork and domestic water

piping systems shall be insulated with fiberglass insulation.

insulate refrigerant piping with 1/2" Armaflex as needed.

Pipe insulation shall be I" premolded fiberglass insulation

Ductwork shall be insulated with 1-1/2" flexible duct wrap,

insulation shall be neatly installed. Any insulation damaged

D. Interior duct lining shall be as specified under section 15880.

A. All work, materials, equipment, and accessories shall comply

The sprinkler contractor shall extend the wet pipe sprinkler

system to properly cover/protect the oxygen room. Final

density flow per square foot shall be determined by fire

with the standards of the national fire protection

association and all state and local regulations.

owens corning fiberglass type 75 with foil faced vapor barrier.

SSI-II. Fittings shalf be insulated and covered with pvc

with an all service jacket, owens corning fiberglass

during construction shall be properly fixed.

which installed. Submit dielectric coupling and gasket

ring swivel type, having rods with machine threads and

company, républic, or bethlehem black or zinc-coated

of pipe and each fitting shall be clearly marked with the

C. Copper pipe shall be revere, anaconda, or chase types "I" hard

shall conform to the requirements of the C.I.S.P.I. Each length

(galvanized) steel as hereinbefore specified. Pipe shall be

free from all defects which may affect the durability of the

intended use. Each length of pipe shall be stamped with the

reinforced the seat rings, Nibco 5-585-70.

125 lb. Wrought copper, ground joint solder

full port bronze body and stem,

Neoprene push-lock fittings.

2) Sanitary wastes & vents piping above floor inside building:

4) Atmospheric condensate drains

5) <u>Natural gas piping:</u>

manufacturer's name.

clad and prime paint finish.

material for approval.

3. <u>Section 15250 - Mechanical Insulation</u>

Section 15300 - Fire Protection

Cast iron no-hub soil pipe Cast iron no-hub soil pipe fittings

No-hub stainless steel qasketed fittings

caps, Church open front white seat with cover, rigid supply with 3) Domestic hot and cold water and t&p drain piping: angle stop valve. P-IA Bedpan Cleaning Assembly: #7880.091 assembly which All water lines - hard copper type L includes vacuum breaker, nozzlé with hook, pedal valvé and loose Solder type wrought copper - lead free key supply

> P-2 Wall Hung Sink (handicapped): #0355.012 Lucerne, vitreous china construction, front overflow, faucet ledge. Lavatory to be fitted with Elkay #LK-4417-L, single lever centerset faucet, complete with arid drain, tallpiece, cast brass "p" trap, tubing to wall escutcheon, key operated supply valves with rigid supplies and chair carrier. All exposed waste piping and hot and cold water piping shall be insulated with truebro handi lay-quard model 102 insulation kit with white finish.

C. The installation shall include, but are not limited to valves.

flow switches, sprinkler heads and escutcheons, pipina,

D. The sprinkler contractor shall carefully examine all

familiarize himself with project conditions such as

Sprinkler heads shall be installed to properly cover

The contractor shall arrange for approval of the

sprinkler systems, and conduct tests in accordance

G. The sprinkler contractor shall provide a detailed shop

drawing showing piping layout, head locations, elevations

plumbing trades. The contractor shall submit detailed

sprinkler shop drawings with actual heads for architect

H. The sprinkler contractor must submit one sepia of sprinkler

shop drawings and hudraulic calculations to county fire

A. The work covered by this section of the specifications

in connection with the rough-in, final setting and

B. All plumbing fixtures shall be complete in every detail

Standard or approved equal as follows:

consists of furnishing all labor, equipment and materials

connections to all plumbing fixtures. The contractor shall

contract drawings to determine the extent of the plumbing

designed to prevent the backflow of polluted water or waste

P-I Water closet (handicapped): #2108.408 Cadet, 17-1/2" high

elongated toilet, water saver 1.6 gallon flush with vitreous china

construction, siphon jet flush action, close-coupled tank, bolt

carefully review the conditions at the site and all of the

with all trimmings and connections. All fixtures shall be

into the water supply system. Fixtures shall be American

department/marshall prior to any fabrication or construction.

and coordination with all building structure, electrical and

building construction and pipe and ductwork locations

and protect the clean storage and soiled holding areas.

Any sprinkler heads installed in finished ceilings shall

documents during the bidding period. He shall

be brushed chrome semi recessed type.

approval prior to any fabrication.

and elevations.

with NFPA 13.

SECTION 15400 - PLUMBING

work required.

fittings, hangers and signs and other identification markings,

P-2A Procedure Sink: #LR-1722 by Elkay, 18 gauge-type 302-self rim bowl with Sloan Optima ETF-770 electronic gooseneck hand faucet with infrared sensor with trim plate for 4" center-set sink. Sink to be complete with grid drain, tailpiece, cast brass "p" trap, tubing to wall escutcheon, key operated supply valves with rigid

P-2B Nurse/Clean/Soiled Work Sink: #LR-1722 by Elkay, 18 gauge-type 302-self rim bowl. Faucet shall be #3579 by Delta, II" high gooseneck spout with 4" wrist blade handles. Sink to be complete with grid drain, tailpiece, cast brass "p" trap, wall escutcheon and supply valve's with chrome supplies. Provide a faucet mounted eye wash by WaterSaver #EWIOI with duct covers and chain (eye wash for the nurse work area sink only-refer to note 24 on sheet $\underline{m-2}$ for water temperature control).

P-2C Lounge Sink: #CR-3322 by Elkay, 20 gauge-type 302self rim bowl double bowl sink @ [3-1/2"x16"x7-1/2" each, overall 33"x22", 4-hole, faucet #LK231BH5 by Elkay with 5" handles, swinging hi-spout and retractable hose and spray. Sink to be complete with grid drain, tailpiece, cast brass "p" trap, tubing to wall escutcheon, key operated supply valves with rigid supplies.

P-2D Scrub Sink: #EWMA-4820-C by Elkay, 14 gauge, type 304 stainless steel muttiple station wash sink with 74" radius covered corners. full height 10" high backsplash, exposed surfaces are hand-blended to a uniform lustrous satin inish. Furnished with wall hangers and stainless steel support brackets. Provide pair (2) of back mounted 9" tubular gooseneck spouts # LK-395 Elkay, each controlled by a knee action mixing valve, #LK-397-C by Elkay.

P-3 Mop sink: #MSB-2424 by Fiat, 24" X 24" X 10" deep molded-stone mop service basin color white. The factory installed drain body shall be stainless steel and designed to provide for a lead caulk or QDC-3 joint to a 3" drain pipe. Service faucet #8344.111 with top brace, stops, 10-1/2" spout, 3/4" hose thread on spout, integral vacuum breaker, adjustable union couplings, stop shanks and 30" flexible hose.

P-4 Refrigeration Ice Maker: Contractor shall provide wall mounted recessed box with shut off valve for connection to refrigerator ice maker by others. Extend 1/4" water line to unit with in-line cartridge filter. Verify exact line size. Box shall be IPS corporation model 9000.

P-5 Countertop Coffee Machine: Contractor shall provide wall mounted recessed box with shut off valve for connection to bu others. Extend 1/4" water line to unit. Verify exact line size. Box shall be IPS corporation model 9000.

C. Sanitary vents thru roof shall be flashed with seamless lead flashing assemblies. Flashing shall have a conical steel reinforced boot and shall be complete with a top cast iron counterflashing.

D. The water heater shall be state, or an approved equal.

- Heater shall be rated at volts and phase as indicated on drawings and be listed by underwriters' laboratories. Tank shall be factory fired with glass lining with 150 psi working pressure and equipped with extruded high density magnesium anode at t & p relief valve. Electric heating element shall be series I- medium watt density with zinc plated copper sheath. The controls shall include a thermostat with each element and a high temperature cutoff. The jacket shall provide full size control compartments for performance of service and maintenance thru front panel openings and enclose the tank with insulation. The arain valve shall be located in the front for ease of servicing. Outer jacket shall be baked enamel finish. Heater shall have a three (3) year limited warranty for commercial installation, as outlined in the written warranty. Fully illustrated instruction manual shall be included. Insulation must meet ashrae standard 90a-1980 for energy efficiencies.
- E. Potable water systems shall be disinfected prior to use. The method to be followed shall be that prescribed by the health authority and code requirements.

Refer to drawings for size, capacity and voltage.

Section 15500 - Heating, Ventilating & Air Conditioning (HVAC)

- A. The work to be performed shall include all labor, materials and equipment necessary to furnish and install complete, all hvac mechanical equipment as shown on drawings and/or hereinafter specified. It is the intent that the systems be installed complete with all items necessary to provide satisfactory service.
- B. All heating, ventilating and air conditioning equipment which contains compressors shall be provided with extended warranties (minimum four (4) years) for the compressors.
- C. <u>Air Cooled Heatpump Unit</u>:
 - 1) Furnish and install outdoor mounted, air cooled, split system air conditioner unit suitable for ground installation.
 - 2) Unit shall consist of a hermetic compressor, an air cooled coil, propeller-type condenser fan, and a control box.
 - 3) Unit shall discharge supply air upward as shown on contract drawings.
 - 4) Unit shall be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.
 - 5) Unit will be rated in accordance with the latest edition of ari standard 210 and 270.
 - 6) Unit will be certified for capacity, efficiency, and sound and listed in the latest ari directory.
 - 7) Unit construction shall comply with latest edition of ansi/ashrae and
 - 8) Unit shall be constructed in accordance with ul standards and will carry the ullabel of approval.
 - 9) Unit cabinet shall be capable of withstanding federal test method standard no. 141 (method 6061) 500-hour salt spray test.
 - 10) Air cooled condenser coils will be leak tested at 150 psig and pressure tested at 300 psiq. 11) Unit shall be factory assembled, single piece, air cooled air conditioner
 - unit .Contained within the unit enclosure is all factory wiring, piping, control, compressor, refrigerant charge (R-22), and special features required prior to field start-up.
 - 12) Unit cabinet will be constructed of galvanized steel, bonderized and coated with a powder coat paint.
 - 13) Condenser fan will be direct drive propeller type, discharging air upward. Condenser fan motors will be totally enclosed. 1-phase type with class b insulation and permanently lubricated bearings. Shafts will be corrosion resistant. fan blades shall be statically and dynamically balanced. Condenser fan openings shall be equipped with pvc coated steel wire safety guards. 14) <u>Compressor</u>
 - a) Compressor shall be hermetically sealed.
 - b) Compressor shall be mounted on rubber vibration isolators.

15) <u>Condenser coil</u>

- a) Condenser coil shall be air cooled.
- b) Coil shall be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehipdrated, and sealed.
- 16) Refrigeration components
- a) Refrigeration circuit components shall include liquid line shut- off valve with sweat connections, suction shut-off valves with sweat connectinos, system sharge of refrigerant R-22, and compressor oil.
- 17) Nominal unit electrical characteristics shall be 208v, 3 phase, 60 hertz.
- 18) Unit electrical power shall be single point connection. control circuit will be 24v.

19) Unit accesssories shall include:

- a) Motormaster head pressure control shall permit unit to operate down to -20°f and maintain normal system pressure operation during low outdoor ambient temperatures.
- b) Service sentry shall lock out compressor in case of safety switch trip, and light a 24 volt signal light.
- c) 5 year compressor warranty.
- 20) Unit shall be Carrier, Comfort Maker or York.

D. Split System Fan Coil Unit:

- 1) Furnish and install indoor mounted, direct expansion, packaged fan coil unit for vertical floor installation.
- 2) Unit shall be suitable for ducted systems, and shall consist of a fan, evaporator coil, filter, and controls.
- 3) Unit shall be matched with a factory approved condensing unit.
- 4) Unit shall be rated in accordance with ari standard 210/240-89, comply with ansi/ashrae 15 safety code, and carry the v1 label. 5) Unit shall operate on a nominal 208 volt, three phase, 60 cycle
- have factory furnished transformer for fan motor and controls. 6) Equipment shall be a factory assembled, single piece, fan coil unit. contained within the unit enclosure shall be a factory wiring, piping, controls, filters and special features required prior to

distribution system. Unit shall be single point connection and

- 7) Unit cabinet shall be constructed of prepainted galvanized steel, internally lined with high density insulation.
- 8) Indoor air fan shall be of the forward curved type, statically and dynamically balanced at the factory. Fan motor shall be a direct drive, permanent split capacitor type with multi-speed capability.
- 9) Evaporator coil shall have 3 rows of copper tubes, mechanically bonded to plate type aluminum fins. Tubes shall be grooved internally, and fins shall be of the lanced sine-wave, type for enhanced heat transfer. Condensate pan shall be constructed of high impact thermoplastic to preclude sweating, and shall have primary and secondary drain connections with brass inserts. Refrigerant metering device shall be a fixed-orifice type valve with a preselected flow control piston suitable for cooling duty.
- 10) Filters shall be factory supplied throw away type.
- 11) Electric controls shall consist of a solid state interlock board with built-in fuse, fan motor contactor with 24 volt solenoid coil, and a control circuit transformer with fuse protection.

- 12) The following accessories for field installation shall be provided:
- 1. Thermostatic expansion valve kit to replace standard refrigerant metering device.
- 2. Freeze thermostat to provide primary freeze protection for the evaporator coil in low ambient cooling applications.
- 3. Liquid line filter drier to remove contaminants from the refrigerant
- 4. Latent capacity control kit to maximize latent cooling capacity at part load.
- 5. Factory installed electric heating coil.

13) Unit shall be Carrier, Comfort Maker and York.

E. Procedure Room HVAC Unit:

- (1) The indoor air handler shall be mounted above ceiling, supplemental DX-Air Handling Evaporator. The air handling section shall house, as a minumum, the evaporator coil, expansion valve, evaporator blower/motor and associated electrical and refrigeration components. The evaporator section shall be located at some distance from its corresponding outdoor remote air cooled condensing unit. The system's compressor shall be located the with Remote Condensing section.
- (2) the remote outdoor shall be a remote air cooled condensing unit with direct-driven, propeller fan. The system compressor shall be located with the remote condensing unit section. The condensing unit cabinet shall also house the condenser coil, blower and blower motor and Nema 3R condensing unit motor control/enabling box.
- The condensing unit shall be sized to provide the total heat of rejection of the system at a 95°F DB ambient temperature for the corresponding model AHU Air Handling Unit. Split system units shall be manufactured by ATS.
- Wall mounted electric heater
- (1) Furnish and install Qmark, Berko or approved equal. (2) Equipment shall be constructed with the following:
- A) Tamper resistant construction
- B) Integral thermostat C) Heavy duty 16 gauge bar grille

SECTION 15880 - Air distribution

- A. Furnish all labor and materials necessary to complete the sheet metal work associated with the heating, ventilating, air conditioning and exhaust systems, and other miscellaneous items shown and required.
- B. All ductwork shall be constructed and installed in accordance with the sheet metal and air conditioning contractors national association (smacna) standards, ashrae standards and boca standards.
- C. Flexible ductwork shall be Hart & Cooley type F214 or approved equal. Flexible duct shall comply with nfpa bulletin 90a and shall be U.L. listed as class I air duct and connector, standard 181.

Support horizontal ducts with hangers spaced not more than six (6)

feet apart. Use straphangers for ducts up to thirty (30) inches

- wide, angle hangers or rods for ducts over thirty (30) inches wide. Straphangers to be one (1) inch wide, 20 gauge minimum; fasten to sides and bottom of duct with sheet metal screws. E. Ducts shall be straight and smooth on the inside, with joints neatly finished. Ducts shall be suspended from the construction and shall be free from vibration. Curved elbows shall have a center radius
- equal to one and one-half (I-I/2) times the width of the duct. <u>All</u> square turns shall be vaned. Vanes consisting of curved metal blades shall permit the air to make abrupt turns without turbulence. All joints in the heating, ventilating, air conditioning and exhaust
- system ductwork shall be sealed. Sealant shall be as manufactured by united inc. or approved equal, sealant shall be smacna and ul approved, with a flame spread of 10 and a smoke developed of O, non-toxic and non-flammable. Sealant shall be approved for operating temperatures from O degrees f. to
- 200 degrees f. Sealant system shall be installed in strict accordance with the manufacturer's recommendations and when applied shall provide a permanent seal without any deterioration.
- All ductwork supply and return air ductwork, except any within the Procedure area, shall be lined on the interior for thermal and sound attenuation. Lining shall have a one (1) inch thickness and shall be glued with one hundred (100) percent coverage and additionally secured with pins. Increase duct sizes indicated two (2) inches direction to accommodate the interior lining.
- Supply air diffusers shall have all steel construction, Titus model MS louvered face and finished with #26 off-white enamel.
- Return air register/grille shall have all steel construction, Titus mode! 25R louvered face and finished with #26 off-white ename!.
- Return air device shall be perforated type with built in fire damper at ceiling with all steel construction. Return air device (air transfer within oxuqen room ceiling only) shall be Titus model PAR-FR with #26 off-white enamel finish.
- Ceiling/in-line fans shall be gemini models as manufactured by cook. Fans shall have acoustically insulated housings and shall have a maximum sound level rating of 6.0 sones. Air deliveries shall be as indicated on the drawings and all fans shall bear the amca certified ratings seal and the v.l. label. Integral backdraft damper shall be totally chatterproof with no metal contact. Fan shall have true centrifugal wheels with inlet perpendicular to, or remote from, inlet grille. Grille shall be of aerodynamic design of white molded plastic egacrate shape and provide eighty-five (85) percent free open area, terminal box shall be provided on the housing with cord, plug, and receptacle inside the housing. Entire fan, motor and wheel assembly shall be easily removable without disturbing the housing. Motor speeds shall not exceed 1600 rpm and all fan motors shall be suitably grounded and mounted on rubber-in-shear vibration isolators. Fans shall be controlled by a wall mounted light switch. Switch and connection shall be by electrician.

<u> SECTION 15950 - Controls</u>

The contractor under this heading shall furnish and install all wiring necessary for a complete electric system of automatic temperature control. The system shall include all necessary thermostats, relays, switches, etc. required for successful operation. electrical work in connection with the temperature control system shall be performed by the control contractor.

Existing rooftop units #1 and #2 and fan coil #1 hvac unit shall be controlled by a single wall mounted heating/cooling thermostat. Thermostat shall be a seven (7) day twenty-four (24) hour program clock Honeywell T7300 or equal.

The automatic temperature control contractor shall be responsible for the commissioning of the project to assure a fully functional, fine-tuned hvac system upon occupancy.

The commissioning of the project shall be performed in accordance with American Society of Heating, Refrigerating and Air conditioning Engineers, inc. (ASHRÁE) pamphlét 1-1989 guideline for commissioning of hvac systems.

Commissioning is defined as verification of the proper operation of all equipment, alarms, safeties and control and energy management systems serving mechanical systems installed or modified on this project as defined within the specifications and indicated on the contract drawings.

Proper operation is defined as the activation of all controls, field or factory installed, to assure the correct sequencing of equipment and systems, including activation of all operating and safety controls, as hereinbefore described. The automatic temperature control contractor shall report all system

deficiencies to the mechanical contractor. The mechanical contractor shall instruct the proper trade to correct any deficiencies reported by the automatic temperature control contractor so that the project commissioning can be completed.

Prior to the commencement of any commissioning work, the automatic temperature control contractor shall provide the engineer with a commissioning report format for review and approval. The report format shall be delivered to the engineer not more than thirty (30) days after award of the atc contract or not less than sixty (60) days prior to start of atc work, whichever is earlier.

Commissioning report format shall include a list of all items to be verified, with the initials of the mechanic who verified the particular item/control and the date on which each item/control operation was

Three (3) commissioning reports are required. The first report shall be completed during the initial commissioning of the project prior to occupancy. The second and third reports shall be completed no more than two (2) months (I report/month) after occupancy of the building. All controls/safeties shall be verified in the presence of the owner/owner's representative. The final report shall also contain the signature of the owner or owner's representative for each item

DESCRIPTION REV# DATE

DON PENN

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RMS LIFE LINE WALL STREET AND WESLEY AVENUE NORWOOD, OHIO

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