

SECTION 15400

PLUMBING FIXTURES AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The extent of plumbing fixtures and equipment work is indicated on the drawings and by the requirements of this section.
- B. The types of fixtures and equipment required for the project include but are not limited to the following:
 - 1. Floor Drains (FD-1).
 - 2. Cleanouts for Pipes (FCO).
 - 3. Cleanouts for Pipes (WCO).
 - 4. Water Hammer Arrestors.
 - 5. Hot Water Generators (Storage type)(EWH).
 - 6. Water closet, European Type (WC-1).
 - 7. Lavatories (LAV-1).
 - 8. Service Sink (SS-1).
 - 9. Shower Head and Tray (SH-1).
 - 10. Electric Water Cooler (EWC-1).
 - 11. Hose Bib (HB).
 - 12. Kitchen Sink, Single Compartment (KS-1).
 - 13. Urinals.

1.02 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of plumbing fixtures and equipment of the types, styles and configurations required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Provide equipment which has been listed and labelled by underwriters laboratories.

1.03 SUBMITTALS

- A. Preferred Manufacturers: Product names are given to indicate the quality or standard required in making a submission, but the Contractor is free to submit for approval, materials or goods or alternative manufacturers provided they are not of a lesser standard than the named product.

- B. Manufacturer's Data: Submit manufacturer's data for the plumbing fixtures and equipment including rough-in drawings, templates, instructions and directions for installation of water and drain piping.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver fixtures individually wrapped in factory-fabricated fiberboard type containers or wooden crates.
- B. Handle fixtures carefully to prevent breakage, chipping, denting, and scoring items; replace and return damaged units to equipment manufacturer.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Except as otherwise indicated, provide manufacturer's standard materials and components as indicated by published product information and as required for a complete installation. All exposed pipes, fittings and accessories shall be chrome plated. Plumbing fixtures design, style and shape shall be subject to approval by the Engineer.

2.02 PLUMBING FIXTURES AND EQUIPMENT

- A. Floor Drains:
 - 1. Floor Drain (FD-1): UPVC floor drain and integral deep drum type P trap with double drainage flange, weepholes, side outlet, spigot connection and adjustable satin nikaloy round tractor strainer size as shown on drawings.
- B. Cleanout (CO) : UPVC floor and wall type, with inside cauld body and coated cast iron plug with lead seat. Size as of pipe serving.
- C. Water Hammer Arrestors (shock absorbers): Provide Zurn factory fabricated shock absorbers consisting of a precharged nesting diaphragm bellows enclosed in a stainless steel casing. Shock absorbers shall be installed where required and where shown on the drawings and shall be sized in accordance with BS 6700. Units shall be rated for a maximum working pressure of 17 Bar and temperatures ranging between 0° C and 150° C.
Gas cushion of units shall be dry nitrogen gas.
- D. Electric Water Heater:
 - 1. The electric water heater shall be a complete package unit ready for plumbing and electrical service conditions. It shall be insulated with heavy duty 50 mm thick fiberglass blanket insulation and high gloss enamel finish. Electric Heating Coil capacity and storage capacity as shown on drawings.

2. Quality Assurance:

- a. Manufacturers: Firms regularly engaged in the manufacture of water heaters of the types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- b. Comply with National Electrical Code (NFPA 70) as applicable to installation and connection of electric water heaters.
- c. Provide water heaters and safety relief valves complying with ASME Code and stamped with appropriate code symbols.

3. Product Delivery, Storage and Handling:

- a. Handle water heaters carefully to prevent external and internal component damage, breakage, denting and scoring enclosure finish. Do not install damaged water heaters; either replace damaged components or return water heater to factory for replacement.
- b. Store water heaters in a clean dry place. Protect water heaters from weather, dirt, fumes, water construction debris and physical damage.

4. Installation:

- a. Install water heaters where shown, in accordance with equipment manufacturer's written instruction, and with recognized industry practices, to ensure that water heaters comply with requirements and serve intended purposes. Comply with requirements of State and local codes and applicable NFPA and ASME Boiler and Pressure Vessel Codes and Standards.
- b. Coordinate with other work (plumbing, piping) as necessary to interface installation of water heaters with other components of system.

E. Water Closets:

- 1. European Water Closet (WC-1): Vitreous china, heavy duty back to wall WC pan, floor mounted with P or S trap and inserted seat pads, complete with concealed flush tank 7.5 litres capacity and with angle valve and wheel handle all chrome finished, mounting clamps, kit and sealer.

Flushing mechanism.

15 mm chrome plated angle valve with blue index and connecting rod.

Each water closet whether asiatic type AWC- or European type WC- shall be provided with a spray assembly unit, type AF-1 which shall consist of a flexible hose, nozzle with aerator, mounting bracket, exposed vacuum breaker and self-closing push-button valve.

European water closet shall be provided with vitreous china semi recessed toilet paper holder.

F. Lavatories:

1. Lavatory (LAV-1): Lavatory, vitreous china, quadrilateral shape, wall mounted, color white or as proposed by Contractor and reviewed by the Engineer, with overflow, with individual mixing control valve and centerset faucet and aerator, with pop-up drain fitting, with chrome finish tailpiece and P-trap, with water volume control angle valves and supply tubing.

G. Service Sink (SS-1): Enamel fireclay cleaners sink with bucket grating and hand wood rim, supported on block store enamel square section legs with support to wall. Sink approximately dimensions shall be 450 x 400 x 200 mm or circular corner type, complete with ϕ 15 hot and cold water taps. Waste outlet ϕ 40 mm with waste grid.

H. Shower (SH-1): White vitreous china shower tray, approximate dimensions 800 x 800 mm, with overflow, slip resistant base, slotted strainer waste. Shower fittings shall include a tray and mixer, balancing valve with integral check stops (indexed chrome lever handle), with adjustable shower head arm and flange and inlet diverter spout.

I. Urinals (UR-1): Bowl urinal, vitreous china, approximate dimensions of 500x350 mm, complete with wall hangars, concealed flush pipes with spreaders and clips, chrome-plated waste pipe to wall and flange, automatic flushing cistern with siphon, drip tap and wall hangar.

J. Hose Bib (HB): Single faucet, self closing (except for hose bibs installed outside the buildings; for irrigation with 4-arm handle (without permanent 4 arm handle for hose bibs installed outside the buildings for irrigation), with 22 mm diameter male thread end, with adjustable wall flange (for those installed in the buildings), with polished chrome finish, with vacuum breaker. Provide faucet for hot water use, when indicated on drawings, with mixing control valve.

K. Electric Water Cooler (EWC-1): Floor mounted stainless steel electric water cooler. The unit shall comprise:

- Push-button bubbler.
- In-line flow regulator.
- Glass-filler.
- Drain outlet size ϕ 32 mm.
- Water connection ϕ 15 mm.
- Compressor and motor hermetically sealed permanent by lubricated with condenser coil fin and tube type (115 HP).

The rated capacity shall be based on 5°C drinking water temperature at 27°C ambient conditions.

Stainless steel complete cabinet, panels and basin, constructed on long-wearing, easy care type 316, stainless steel polished to a satin finish. The unit shall be suitable for single phase, 220V/50 Hz supply.

- L. Kitchen Sink (KS-1): Single compartment stainless steel kitchen sink, stainless steel type 316 minimum thickness 1.2 mm with No. 4 brushed finish. Sink shall be complete with chrome-plated mixer, swing spout faucet with aerator, chrome-plated faucet handles, stainless steel 9 mm cup P-trap angle valves and supply tubing.

Kitchen sink dimensions and trim shall be suitable to the kitchen equipment where it shall be installed.

PART 3 - EXECUTION

3.01 INSPECTION

- A. The Contractor shall examine the installation of domestic water and soil piping stubs and terminations to verify actual locations, and shall examine areas and conditions under which plumbing fixtures shall be installed. Water or drain pipes (connected with the fixtures) found to be wrongly installed, shall be corrected before installing fixtures.

3.02 INSTALLATION

- A. General: Install plumbing fixtures and equipment in accordance with manufacturer's written instructions and in accordance with the applicable regulation and recognized industry practices to insure that products serve the intended function.
- B. Coordinate with other work, including water and drain piping as necessary to interface installation of plumbing fixtures, properly with other work.

3.03 SUPPORTS

- A. All fixtures and equipment shall be mounted level, sure, rigid and flush with wall or floor as required.

- B. Drill holes carefully to avoid chipping block or tile.
- C. All supports shall be concealed unless noted otherwise.
- D. Furnish and set all hangers, supports, brackets, etc., for proper installation of all fixtures and equipment. Supports shall be in accordance with recommendations of fixture manufacturer, and if built into partitions or walls, shall be set as wall construction progresses. Contractor shall be responsible for stability of all fixtures and furnishing all chair carriers or other materials necessary to accomplish this. Exact mounting height shall be as approved by the Engineer.
- E. If not factory primed or coated, prime all concealed supports with one coat of rust-resistant primer.

3.04 FIXTURES

- A. Locate, place, level and secure all plumbing fixtures and trim specified in this Section and make all connections to drainage system, hot water supply system, and cold water supply system.
- B. Make adequately sized connections to all supply lines and drains and make all required reductions and increases in pipe or tubing size as required to make connections to faucets, P-traps, and piping systems.
- C. Water supplies to all fixtures shall be valved at fixture.
- D. All fixtures shall be left thoroughly clean and free from all marks and foreign substances.
- E. Place and install basins and seal around edges with suitable silicone sealant.
- F. Contractor shall replace all leaky faucets and valves prior to final inspection.
- G. Adjust all flush valves for quiet operation, minimum pressure required to cleanse bowls, and period of flush.
- H. All faucets shall have visible indices. All trim shall be permanently stamped with manufacturer's identification clearly visible after installation.
- I. Caulk around all fixtures and adjacent surfaces with a white silicone sealant, fungicidal type.

** END OF SECTION **

SECTION 15410

PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipes and pipe fittings for domestic cold and hot water.
- B. Sanitary sewer and vent piping
- C. Condensate drain piping.
- D. Storm water piping

1.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide components and installations capable of producing piping systems with the following minimum pressure rating:
 - Water distribution Systems - Below ground 1035 kPa.
 - Water distribution Systems - Above ground 1035 kPa.
 - Soil, waste and vent systems - 4 m head of water
 - Storm water drainage systems - 4 m head of water.

1.03 SUBMITTALS

- A. Submit manufacturer's product data.
- B. Submit shop drawings.

1.04 QUALITY ASSURANCE

- A. Comply with provision of ASME B31.9 "Building Services Piping" for material, products and installations.
- B. Provide listing/approval stamp, label and other marking on the piping made to specified standards.

PART 2 PRODUCTS

2.01 DOMESTIC COLD WATER

- A. Polyvinylchloride (PVC) Pipes and fittings for solvent cement joints. Pressure class 5 (16 bar) for main and external buried domestic water piping.
- B. Copper tubing ASTM B88, type L hard drawn from valved PVC branch indoor concealed and exposed piping to plumbing fixtures.

2.02 SANITARY & STORM SEWER, VENTING AND CONDENSATE DRAIN PIPING

- A. Sanitary and Storm Water: Polyvinylchloride (PVC) Pipes and fittings: Joints; Socket and spigot, neoprene or rubber gaskets. Pressure class III.
- B. Condensate drain: UPVC pipes and fittings for the condensate drain for the fan coil/ air handling units. Pipes and fittings for solvent cement joints.

2.03 BALL VALVES

- A. PVC ball valves with union connection to pipe system.

2.04 RELIEF VALVES

- A. Bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labeled.

2.05 CHECK VALVES

- A. Check valves shall be spring actuated lift type, suitable for to prevent automatically reversing of flow. Location and sizes as indicated on the drawings.
- B. Check valves of sizes 40 mm and smaller shall be of bronze construction, screw ends.
- C. Check valves of size 50 mm and larger shall be cast iron body wafer type, stainless steel or bronze disc, stainless steel spring, renewable seats.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Route piping in orderly manner and maintain gradient.
- C. Install piping to conserve building space and not interfere with use of space and process.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Provide clearance for access to valves and fittings.
- G. Provide access where valves and fittings are not exposed.
- H. Provide PVC air vent terminals on sewer vent stacks.

3.02 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install ball valves for shut-off and to isolate equipment or part of systems.

3.03 CLEANING

- A. Clean and disinfect water distribution piping as follow:
 - Purge new water distribution piping and part of existing part of the modified for connection to new network prior to use.
 - Use disinfecting method prescribed by authorities having jurisdiction or prescribed in AWWA C651
 - Prepare and submit report regarding disinfecting activities.

3.04 PROTECTION

- A. Protect all piping during the construction period to avoid clogging with dirt and debris and to prevent from physical damages.
- B. Protect the PVC piping exposed to sun light with two coats of water based latex paint.

- END OF SECTION -

SECTION 15764

SPLIT AIR CONDITIONERS AND VARIABLE REFRIGERANT VOLUME SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of packaged through-the-wall room air-conditioners and split room air-conditions, work is indicated by requirements of this section. Units are hereby defined to include, but not by way of limitation, refrigeration compressors, direct-expansion coils, filters, fans, and air-cooled condensers.
- B. The types of packaged air-conditioning units required for project include the following:
 - 1. Split room air conditioners.
 - 2. Variable Refrigerant Volume System

1.02 QUALITY ASSURANCE

- A. Manufacturer's: Firms regularly engaged in manufacture of packaged air-conditioners, of types, sizes and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Guarantee: Air conditioning units shall include a one (1) year warranty on all parts and labour after acceptance by the Engineer. Additionally they shall include a five (5) year parts warranty on motor compressor units.
- C. NFPA Compliance: Comply with the applicable provisions of NFPA Stds. 70, 90A and 90B, pertaining to construction and installation of self-contained air conditioning units.
- D. Flame-Smoke Rating: Except as otherwise indicated, provide self-contained air conditioning unit thermal insulation with flame-spread rating of 25 or less, fuel-contributed of 50 or less, and smoke-developed rating of 50 or less.
- E. AMCA Standards: Comply with Air Movement and Control Association standards as applicable to testing and rating fans.
- F. ARI Certification: Provide air conditioning units which comply with Air Conditioning and Refrigeration Institute standards 210 and 270, ARI 310 and display ARI's certification symbol.
- G. UL Compliance: Provide air conditioning units whose electrical components have been listed and labelled by Underwriters Laboratories.
- H. ANSI/ASHRAE Compliance: Comply with installation requirements of

ANSI/ASHRAE 15: "Safety Code for Mechanical Refrigeration," ANSI/ARI 310, and ASHRAE Standard 90-75 Section 6.3.

- I. Instruction of Personnel: At completion of the work, the Contractor shall furnish a competent service man to instruct Client's personnel in the proper operation and maintenance procedures to be followed. The instruction shall be given for a total of five (5) full working days, not including time spent troubleshooting and adjusting the system as required by this Contract. At Client's option the instruction period may be postponed in part or in whole until a later period within the year following the completion of the Work.

1.03 SUBMITTALS

- A. Submit manufacturer's data on packaged air-conditioning units, including drawings showing overall dimensions of unit, operating weights, and auxiliary equipment.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged air conditioning units with factory-installed shipping skids and lifting lugs; pack components in factory-fabricated protective containers.
- B. Handle air conditioning units carefully to avoid damage to components, enclosures, and finish. Do not install damaged components; replace and return damaged components to air conditioning unit manufacturer.
- C. Store air conditioning units in clear dry place and protect from weather and construction traffic.

PART 2 - PRODUCTS

2.01 SPLIT ROOM AIR CONDITIONERS

- A. Condensing Unit: To be suitable for operation in 44°C ambient temperature air cooled, horizontal air discharge type, comprising a compressor, condenser coil, condenser fan and motor, refrigerant receiver, charging valve and controls, electric heating element, assembled in a common casing. Unit to be tested at factory and supplied complete with refrigerant and dehydrated compressor oil.
- B. Compressor: Sealed, hermetic type, mounted on external spring isolators, with crankcase heater and in-built thermal overload protection.
- C. Condenser Coil: Heavy gauge seamless copper tubes mechanically bonded to aluminium plate fins corrosion protected with protective coating. Condensers shall be precoated with a tough abrasion resistant epoxy coating. It is to be circuited for sub-cooling.
- D. Condenser Fan and Motor: Fan to be propeller type, weatherproofed,

statically and dynamically balanced, directly driven by a totally enclosed, permanently lubricated, resiliently mounted electric motor, with Class F insulation and in-built thermal overload protection.

- E. Condensing Unit Casing: Heavy gauge galvanized steel, zinc phosphatized and finished with baked enamel, fully weatherproofed for outdoor installation. Casing is to have openings for power and refrigerant connections and removable panels for easy access to internal components. Control panel is to have a hinged access door.
- F. Condensing Unit Controls: To be factory wired and tested. They are to include high and low pressure switches, compressor overload device, positive acting timer to prevent short cycling of compressor on power interruption, crankcase heater, condenser fan contactors and circuit breakers.
- G. Evaporator Unit: Wall hung, floor mounted or ceiling as indicated.

Evaporator Unit is to consist of DX coil, one or more centrifugal fans, electric motor, condensate drain pan, galvanized steel casing panels, filter, electric junction box and fan switch.

- H. Evaporator Coil: Staggered 12 mm O.D. heavy wall seamless copper tubes mechanically bonded to aluminium fins, with 16 mm solder joint copper tube connections and manual air vent. Coil is to be leak tested at factory to 2352 KPa minimum air pressure under water.
- I. Evaporator Unit Casing: Decorative type, 18 gauge galvanized steel sheet braced and reinforced for maximum rigidity, thermally and acoustically insulated with fibreglass blankets fastened with waterproof adhesive.
- J. Evaporator Fans: Centrifugal, forward curved, non-overloading type, directly connected to fan motor, statically and dynamically balanced and designed for whisper quiet operation. Materials are to be high strength and corrosion resistant.
- K. Evaporator Motor: Shaded pole, 3-speed type, with built in thermal overload protection and bronze sleeve type bearings with oil reservoirs. Motor to be resiliently mounted.
- L. Evaporator Condensate Drain Pan: 18 gauge galvanized steel, projecting under entire length and width of coil including headers and return bends, valves and fittings. Pan is to be treated against corrosion, insulated and pitched for positive drainage and unit installed level.
- M. Evaporator Fan Switch: 3-speed with "OFF" provided with each unit from factory, decorative wall plate remote type, or incorporated in console type units.

- N. Provide (200 x 100 mm) or (150 x 150 mm) fresh air grille/insect screen behind each unit located on external wall unless otherwise indicated or directed by the Engineer.

2.02 VARIABLE REFRIGERANT VOLUME SYSTEM

- A. Flexible air conditions system consisting of DX fan coils and condensing units per the drawing schedules, ARI performance certified, two pipe system, one outdoor unit servicing multiple indoor units, and complete with:
1. Factory wired, piped and tested "intelligent" outdoor units each consisting of a scroll type hermetic compressor with integral over current and temperature and crankcase heater, refrigerant piping muffler, pressure switches, solenoid valves, service ports and service valves, direct driven propeller type condenser fan, aluminium fin / copper tube condenser coil, complete system of control including fused control transformer, motor contactors, circuit board and terminal block for power and signal wiring, and a weather-proof enclosure, finished with a corrosion inhibiting, coating and complete with supports and heavy corrosion protected wire guards for coil and fan.
 2. Factor wired and tested fan coil units each consisting of dynamically and statically balanced fan wheel direct drawn by a capacitor start, electric motor, aluminium fin / copper tube evaporator coil with drain pan with outlet, expansion device, strainer and thermistors, float switch controlled condensate pump, control box with complete system of controls including fused control transformer, printed control board and terminal strips for power and control wiring and corrosion resistant coated casing with mounting brackets, duct flanges and internal insulation protected from air erosion.
 3. Hard wired control system, wall mounting central controller with remote controllers with LCD displays indicating : on / off , cool / dry / fan / heat, fan speed and temperature control; timer with clock; self-diagnostic. Control system shall utilize a non-polarized two-wire serial transmission system

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine areas and conditions under which air-conditioning units are to be installed and notify the Engineer in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.

3.02 INSTALLATION OF SPLIT ROOM AIR CONDITIONING UNITS

- A. Install split room air conditioning units where shown, in accordance with equipment manufacturer's written instructions and recognized industry practices, to ensure that units comply with requirements and serve intended purposes.
- B. The manufacturer shall be responsible for the installation of VRV complete system, including piping and fittings.
- C. Coordinate with other work, including electrical work as necessary to interface installation of self-contained air-conditioning units with other work.
- D. Condensate shall be drained to the outside or as indicated on plans.

3.03 GROUNDING

- A. Provide positive equipment ground for self-contained air-conditioning unit components.

3.04 TESTING

- A. Upon completion of installation of packaged air conditioners, start-up and test equipment in accordance with ARI standards; operate units to demonstrate capability and compliance with requirements. Where possible, field-correct malfunctioning units, then retest to demonstrate compliance.

** END OF SECTION **

SECTION 15870

EXTRACT FANS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof Extract Fans
- B. Ceiling Extract Fans
- C. Cooker Hoods

1.02 REFERENCES

- A. AMCA 99 - Standards Handbook.
- B. Designed, manufactured, and tested in accordance with UL 705 "Power Ventilators".

1.03 QUALITY ASSURANCE

- B. Performance Ratings: Conform to AMCA 210 or other applicable code.
- C. Sound Ratings: AMCA 301, tested to AMCA 300 or other applicable code.
- D. Fabrication: Conform to AMCA 99.

1.04 SUBMITTALS

- A. Submit manufacturer's technical data for extract fans, including specifications, capacity ratings, dimensions, weights, materials, accessories furnished, and installation instructions.
- B. Submit assembly-type shop drawings showing unit dimensions, construction details, methods of assembly of components, and field connection details.
- C. Provide fan curves with specified operating point clearly plotted.
- E.. The total static pressure given in the equipment schedules is approximate and for guidance only. The Contractor must calculate the total static pressure loss for each system and submit for approval, prior to ordering the fans.

PART 2 PRODUCTS

2.01 ROOF EXTRACT FAN

- A. Centrifugal or radial Fan Unit: Direct or belt driven with spun aluminum housing; resilient mounted motor; 13 mm mesh, 2 mm aluminum birds screen at outlet.
- B. Disconnect Switch: Non-fusible located on or nearby the fan.
- C. Provide all exposed components made of heavy gauge aluminum or galvanized steel to give excellent resistance to atmospheric corrosion and local climatic conditions.

2.02 CEILING EXTRACT FANS

- A. Provide compact, single speed and pressure developing ceiling extract fan, of "Xpelair model CMF" or equal suitable for domestic use. For technical details see equipment schedule.

- B. The fan shall be complete with all accessories. Provide flush fittings and visible grille of approved colour.
- C. Provide air operated backdraft shutters. Provide vent cowl type "VC" at the outlet of the exhaust duct.
- D. The motor shall be totally enclosed, permanent lubricated and with thermal cut out.
- E. Provide time delay controller unit for a controlled operation.

PART 3 EXECUTION

3.01 INSPECTION:

- A. Examine areas and conditions under which exhaust fans are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION OF ROOF EXTRACT FANS

- A. Except as otherwise indicated or specified, install exhaust fans and hoods in accordance with manufacturer's installation instructions and recognized industry practices to insure that ventilators serve their intended function.
- B. Coordinate the fans installation work with work of roofing, walls, and ceilings, as necessary for proper interfacing.
- C. Installation and wiring shall conform to current IEE or local regulations. For joining of ducting and equipment use worm drive clips.the

3.03 FIELD QUALITY CONTROL

- A. Testing: After installation of exhaust fans has been completed, test each ventilator to demonstrate proper operation of units at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

- END OF SECTION -