# A GENERAL CONDITIONS

- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND
   SUDDIEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS AND ALL SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS AT PART OF THIS CONTRACT AND APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15
- THE CONTRACTOR FOR THIS WORK IS REQUIRED TO READ THE ENTIRE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL OTHER TRADES.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS SUBCONTRACTORS WITH A FULL SET OF BID SET DOCUMENTS (INCLUMICS SPECFECATIONS) AND THE COORDMANTON OF HIS WORK AND INSPECTIONS AND INTERPRETATIONS AND INSPECTIONS OF HIS WORK AND
- 4. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO DETERMINE COMDITIONS AFFECTION HE WORK. BOS SHALL SERVE AS EVIDENCE REGISTED FOR THE THE TOTHE DRAWNINGS AND SPECIFICATIONS. FALURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
- 5. WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURRISHED AND INSTALLED" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TEMANIT "WHICH MEANS "FURRISHED ONLY," (INSTALLED BY CONTRACTOR), EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

- THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCODENTALS AND DETAILS NECESSARY TO SERVICES, TOOLS, TRANSPORTATION, MICODENTALS AND DETAILS NECESSARY TO PROVIDE A COMPILETE AND FULLY PRINCIPAL MAY SERVICE AS SHOWN IN THE DRAWINGS, CALLED FOR IN THE SPECIFICATION OF A SERVICE OF STATE OF SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. CLOSELY COORDINATE HE ENTER STALLATION WITH ELMOLOGY, DATE QUEITED FILED WITH THE CHANGE AND TO SECURITY OF THE MECHANICAL STATE OF THE MECHANICAL STATE OF THE SERVICE OF
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH, ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE
- WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE LANDLORD'S TENANT CRITERIA, THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING THE SYSTEM AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 5. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANTS CONSTRUCTION MAD AND THE LANDLORD. PATCHING SHALL MATCH, FINISH OF SURROUNDING AREA

- 1. ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES. ALL WORK SHALL COMPORN TO THE LANDLORDS OF THE PROFESSIONAL MANNER USING SHORT MANUAL SHAPPEN OF THE PROFESSION OF
- D. LICENSES, PERMITS, INSPECTIONS & FEES
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS, AND FEES REQUIRED OR RELATED TO HIS WORK.
- FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT SUBSTANTIAL COMPLETION DATE OF PROJECT.

- DRAWINGS (PLANS, SPECIFICATIONS, AND DETALS) ARE DIAGRAMMATIC AND NIDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO NIDICATE ALL DUCT AND PIPMS OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED.
- LIFE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECERATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SURL DIDDICAL TIONS AND CHANGES, INCUING OTHER TRADES WITH THE COST THEREOF INCUIDED BY HIS BD. IN STANDARD OF THE PROPERTY OF THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANTS CONSTRUCTION MAKAGER.

# F. EXISTING SHELL SPACE CONDITIONS

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANCIAL WORK SHOWN ON THE MECHANCIAL DRAWINGS AND THE MECHANCIAL DEMOLITION SHOWN ON THE ARCHITECTURA DRAWINGS.
- DRAWNOS

  2. THE CONTRACTOR SHALL INCLUDE AND WILL BE HELD RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING FIRE PROTECTION. PLUMBING FIXTURES, PIPRIG, HVAC UNITS, REFRIEGRANT RECAPTURE, EMMANT FARS, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT UNLESS SPECEFICALLY MOTED OTHERWISE. CONTRACTOR MIST YERRY WITH THE LANDLORD ALL PRESIMED. AND OF CURBS SHALL BE REMOVED AND THE ROOF FATCHED UNITES NOTED FOR REUSE OR RECONFIGURATION ON PLANS. ROOF PATCHED UNITES NOTED FOR ALL PROMOTED AND THE CONTRACTORS EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXTRANCOUS ITIES IN THE STACE OR ON THE ROOF ABOVE THE CONTRACTORS EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXTRANCOUS ITIES IN THE STACE OR ON THE ROOF ABOVE TO THE CONTRACTOR APPROVED BY THE AND ALL EXTRACTORS IT LESS IN THE STACE OR ON THE ROOF AROUND THE TIENANT SACTIVE. SYSTEM MISS THE REMOVED AND ROOFINGALIFLOOR PATCHED THE AND ALL PROSTROST STRUCTURE. EXSTING ARMOCHISELE EXTRACTION OF NOT WITH THE PROPERTY OF THE
- 3. ACTIVE. LANILUSID OR OTHER TENANT SERVICES ENCOUNTERED IN YORK SHALL BE PROTECTED AND SUPPORTED IN EXITING SERVICES OF INTERPRETABLE RELOCATION, CONTACT THE TENANT'S CONSTRUCTION MANAGER MANEDINETLY. ALL COSTS FOR REPAIR OF BOARDAGES TO ACTIVE LANDLOOD FOR THER TENANT SERVICES DURING CONSTRUCTION SHALL BE PAID FOR BY THE CONTRACTOR CAUSING THE DAMAGE.
- A TIEMS AND MOPEICATIONS TO EXISTING LANDLORD SERVICES MUST BE DONE WITH MINIMUM INTERRUPTION OF LANDLORD OPERATION AND DURING HOURS SPECIFIED BY THE LANDLORD THE CONTRACTOR SRESPONSIBLE FOR CONFRMING EXACT WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING HIS BD. THE CONTRACTOR SHALL INCLUDE IN HIS BD, ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SOLD WORK MUST BE COORDINATED WITH THE

# G. DISCREPANCIES IN DOCUMENTS

## I SHOP DRAWINGS

- SUBMIT SIX COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONS 1 SUBMIT SIX COPIES OF MATERIAL LISTS AND SHOP DRAWNINGS FOR ALL COUPHERE I AND DOCT FARRICATION GRAWNINGS TO THE TRANST'S CORE STRUCTION COUPHER I AND DOCT FARRICATION GRAWNINGS TO THE TRANST'S CORES MINIST BE CARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER EIGHT WORKING DAYS FOR REVIEW WITHOUT CAUSING DELEY'S OR COPILEDTS TO THE JOBS TROORESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS USEN THE MANUFACTUREN'S LISTED ON THE DRAWNINGS. SHOP SET FORTH ON THE DRAWNINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT LIMITED TO CUITS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERS TICS OF EQUIPMENT SHALL SHOW MAJOR DRAWNINGS ROUGHENG NOTAL ACAPACITY CORPES PRESSURE DROP, CODE ORISTINGCTORS WHEN RECURRED. SUBMITTALS SHALL BAS THE STAMP OF THE CREMERAL AND SUB-CONTRACTOR SHOWNING THAT HE STAMP OF THE CREMERAL AND SUB-CONTRACTOR SHOWNING THAT HE STAMP OF THE CREMERAL AND SUB-CONTRACTOR SHOWNING THAT HE STAMP OF THE CREMERAL AND SUB-CONTRACTOR SHOWNING THAT HE SERVIEW DAYS ON CONTRACT OWN TRACTOR'S REVIEW AND APPROVAL WILL BE CAUSE FOR RESCRIPTION WITHOUT CONTRACTOR'S REVIEW AND APPROVAL WILL BE CAUSE FOR RESCRIPTION WITHOUT APPEAR IN THE OFFER THAT AND MANTER MANCE MANUFACTION SUB-CONTRACT OF THE APPEAR IN THE OFFER THAT AND MANTER MANCE MANUFACTURE MANUFACTOR ON STEEL AT JOB COMPLEX.
- TENANT'S CONSTRUCTION MANAGER'S REVIEW OF SHOP DRAWINGS OR SCHEDULES
  SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS.
  MISSIONS OR OTHER DEFICIENCIES OR DEVIATIONS IN THE SHOP DRAWING FROM B. PLUMBING EQUIPMENT
  THE CONTRACT DRAWINGS AND SPECFICATIONS.

# J. RECORD DRAWINGS

- . THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS:
- CHE THE JUST SHE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS
  A. LOCATION FO FORDCALED PRO VALVES, AND LOTTED
  B. REVISIONS, ADDERBURS, AND CHANGE ORDERS
  C. SIGNIFICANT DEVIATIONS MADE RECESSARY BY FIELD CONDITIONS,
  APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION
  WITH OTHER TRADES
  D. EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER
  FLOOR.
- AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, THE CONTRACTOS HALL MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. THE DRAWINGS ARE TO BE TURNED OVER TO THE TENANT.

- THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORK UNDER HIS CONTRACT AND SHALL MAKE GOOD, REPAIR OR REPLACE AT HIS OWN EXPENSE. ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION BY THE EMANTS COOK STRUCTON MANAGER PROVIDE EXTENDED WARRANTERS AS SPECIFIED WITH NONYDUAL ECOUPMENT. IN CAPACITY OF REPLACEMENT OR REPLACEMENT OF REPLACEMENT OR PROVIDED WARRANTERS AS SPECIFIED WITH NONYDUAL ECOUPMENT OR PROVIDED WARRANTERS ON THAT PORTION OF WORK SHALL FOR FALLIER WITHIN GUARANT PERIOD, GUARANTEE ON THAT PORTION OF WORK SHALL FALLED.

- A. SLEEVES
- THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH IT'S RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CLIT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2"ABOVE THE FLOOR.
- . ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RIV" FOAM, "SM" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THE FIRE RATING OF THE FLOOR OR WALL. CONFORM TO UL. ASSEMBLY RATING OF FLOOR OR WALL.
- SLEEVES IN BEARING AND MASCROST VALLE, FLOORS, AND PARTITIONS SHALL STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR DIHER T MASCROWE PARTITIONS, THROUGH SUSPENDED CELLINGS, OR FOR ORCHCALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL WINNIMM.
- 4. DUCT SLEEVES TO BE MINIMUM 14 GAUGE STEEL.

# N HANGERS

- HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.
- 2. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BU NOT TO PPING OR DUCTWORK. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOST, WHICH PERMITTED HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOST, WHICH PERMITTER PERMIT BE ATTACHED HE HANGING PERMIT BE ATTACHED HANGING OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFER WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPMENT SERVICE REQUIREMENTS MODO OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE SUBJECT TO LANDLORD CRITERIA.
- : HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.
- . HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DIFFLECTRICALLY SEPARATED FROM ONE ANOTHER.

# ACCESS DOORS

- FUNDINGS STEEL ACCESS DOORS AND FRAMES, MIN. 19" X 20" OR AS SHOWN ON DRAWINGS, TO GENERAL CONTRACTOR FOR ALL LOCATIONS WHERE NECESSARS PROVIDE ACCESS TO CONCELLED VALVES, AND OTHER EQUEMENT FECOURING SERVICE OR INSPECTION, LOCATION, 197E, SUE AND NUMBER AS DETERMINED BY COM TRACTOR AND APPROVED BY FEMAL COSMIT ON CHOICE TO SUIT AND APPROVED BY FEMAL COSMIT ONE OF THE ADMINISTRATION OF THE ADM
- ACCESS DOORS LOCATED IN FIRE-RATED WALLS, FLOORS, CEILING-FLOOR OR 5. INSULATI
- ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM I

# P. ELECTRICAL MOTORS

- . FURNISH, INSTALL AND A

# A. SCOPE OF WORK

DIVISION 15 - MECHANICA

- SERVICES, TOOLS, TRANSPORTATION AND FACLITIES NECESSARY FOR, REASONABLY MHELEA AND MODERNIA TO. THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE PLUMBING SYSTEMS AS SHOWN ON THE CRAWINGS, CALLED FOR NITHE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO NOTICE, BUT HOT BE LIMITED TO THE FOLLOWING, REFER TO RESPONSIBILITY SCHEDULE FOR EACH TESTINGBILITES!
- A COMPLETE SANITARY PPING SYSTEMS OF WASTE, DRAINS, AND VENTS
  B. COMPLETE COLD AND HOT WASTER PRING SYSTEMS, APPURITENANCES AND
  INSULATION
  C. PLUMBING FIXTURES AND EQUIPMENT AS SCHEDULED
  COMPLETE NATURAL GAS PRING SYSTEMS (AS APPLICABLE, REFER TO
- 'LANS). TESTS AND ADJUSTMENTS.
- BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURZ STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE PLUMBING SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND COMPRENDITATIONS.
- RELOCATION OF EXISTING WATER, GAS, WASTE, VENT, OR DRAINAGE LINES TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOSAL.

- GENERALLY, SANITARY AND POTABLE WATER TAPS WILL BE PROVIDED BY THE LANDLORD. FIELD VERFY EXACT CONNECTION FOOMS FRIOR TO SUBMITTING BO AND NOTEY THE TENANTS CONSTRUCTION MANAGER IF CONDITIONS ARE NO AS SHOWN ON THE FLANS OR AS STATED ME THE STEED FROM TO CONTROL OF A SHOWN OF THE PLANS OF AS THE STEED FROM TO THE PLANS OF THE STEED FROM TO THE TAP OF THE OPERABLE TO PETHER STSTEM FROM TO THE AS THE OPERABLE TO PETHER STSTEM FROM TO THE AS THE STATE OF THE STATE OF THE STATE OF THE TAP OF THE TAP OF THE STATE OF THE STAT
- A. SNAKE SANITARY FOR A DISTANCE OF 100 FEET AND REPORT ANY B TEST WATER PRESSURE TO INSURE MINIMUM OF 50 PSI
- INSTALL ALL NECESSARY PIPE HANGERS, SADDLES, AND CARRIERS SUPPORT ALL PIPING AND FIXTURES. HANGERS SHALL SUIT TYPE OF PIPING PROVIDED AND BE SPACED AT A MAXIMUM SPAN OF 5 FEET. PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODES.
- ESCUTCHEONS SHALL BE CHROME PLATED, SIZE AS REQUIRED AND PLACED AT ALL
  PIPE PENETRATIONS AT WALLS, FLOORS, AND CEILINGS IN FINISHED AREAS.
- FLASHING SHALL BE SEALED WATERTIGHT AND PERFORMED IN ACCORDANCE TO THE LANDLORD'S CRITERIA. USE A LANDLORD APPROVED ROOFING CONTRACTOR WHERE 1. SPRINKLER HEADS APPLICABLE.
- A. WASTE, DRAIN AND VENT PIPING SHALL BE SERVICE WEIGHT, CAST IRON SOIL PIPE. VENT PIPING ABOVE FLOOR 2" OR SMALLER MAY BE GALVANIZED STELL.

  B. JOINTS: BELOW FLOOR SLAB BELL AND SPIGOT WITH CAULKED JOINTS PER CODE.

- CONDENSATE PIPING SHALL BE TYPE "L" DRAWN COPPER TUBE WITH 95-5 TIN ANTIMONY SOLDERED JOINTS AND WROUGHT COPPER FITTINGS WITH DIELEC SEPARATION BETWEEN DISSMILAR METALS.
- POTABLE WATER PIPING:
- OUABLE WATER FEMOL.

  BELOW GRADE. TYPE "X. ANNEALED TEMPERED COPPER TUBE FOR PIPE SIZES 2 INCHES AND SMALLER. BRAZE ALL JOINTS.

  A BOVE GRADE. TYPE "L'DRAWN COPPER TUBE WITH WROUGHT COPPER FITTINGS AND 9S.5 TRA-ARTHOWY SOLDER.

  FITTINGS AND 9S.5 TRA-ARTHOWY SOLDER.

  NOISE AND DAMAGE DUE TO WATER THAMMER.

  ALL BRANGH PIPING SYSTEM SHALL HAVE ACCESSIBLE SERVICE VALVE.

  PROVIDE SHAT DET VALVES IN THE SUPPLY PIPING TO EVERTY FRUTURE.

  PROVIDE HAD TO FVALVES IN THE SUPPLY PIPING TO EVERTY FRUTURE.

  PROVIDE ACCESS DOORS WHERE NCESSARY.

  \*\*CONTINE THE DET OFFICIAL PROVIDE ADDRESS CRITERIOR OF THE PIPING TO THE PIPE TO PIPING TO THE PIPE TO PIPE TO PIPE TO THE PIPE TO PIPE TO THE PIPE TO PIPE TO THE PIPE TO PIPE TO PIPE TO THE PIPE TO PIPE TO PIPE TO THE PIPE TO P

# DIVISION 15 - MECHANICAL

- A SCOPE OF WORK 1. THE F.P. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACLITIES NECESSARY FOR, REASONABLY MUPLEO AND NODEDITAL TO, THE FURNISHING, MISTLALITION, COMPLETION AND TESTING OF ALL THE WORK FOR THE SPRINKLER SYSTEMS AS SHOWN ON THE DRAWNINGS, CALLE FOR N THE SEC-ECTACIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING, REFER TO RESPONSIBLITY SCHEDULE FOR EACH RESPONSIBILITIES)
- A INSTALLATION OF NEW WET SPRINKLER SYSTEMAS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH HEPA-13, LOCAL CODES, LANDLORD'S CRITERIA, AND INSURANCE GARRERS FOR THE MALL AND TENANT.

  B. TAPS, RISERS LATERIALS, BRANCHES, VALVES, ALARMS, SPRINKLER HEADS AND ALL COMPONENTS REQUIRED FOR A COMPLETE SYSTEM.
  C. DESIN DRAWINGS, CALCULATIONS, SUBMITTALS AND APPROVALS.
  D. PERMITS, FEES, AND CHARGES.
  E. TESTS AND TEST CERTIFICATIES.
  F. COST FOR STAULT DOWN FEES.
- THE CONTRACTOR THAT DOES THE ACTUAL SPRINKLER WORK IS REQUIRED TO BE A LANDLORD APPROVED SPRINKLER CONTRACTOR.
- BEFORE STARTING WORK, THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICA, AND ELECTRICAL PLANS AND SPEC PICATIONS TO SEQUENCE, COORDINATE, AND MITEGRATE THE VARPIOUS ELEMENTS OF THE FIRE PROTECTION SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONTROVITATIONS.
- RELOCATION OF EXISTING MAINS, LATERALS, BRANCHES AND RISERS TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOS. B. SHOP DRAWINGS
- THE FIRE PROTECTION CONTRACTOR SHALL PREPARE DETAILED SHOP DI AND CALCULATIONS FOR HIS WORK, SUBMIT SIX (8) COPIES TO GENERAL CONTRACTOR FOR APPROVAL. NO WORK SHALL BEGIN UNTIL TENANT'S CONSTRUCTION MANAGER APPROVES HEAD AND PIPING LOCATIONS.
- THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR SUBMITTIN COORDINATED DRAWINGS, CALCULATIONS, HEAD TYPES AND COLORS AUTHORITIES HAVING JURISDICTION FOR APPROVAL. NO WORK SHALL BEGIN UNTIL ALL APPROVALS HAVE BEEN RECEIVED.
- A COPY OF THE LETTER OF APPROVAL FROM THE LANDLORD'S INSURANCE RATING BUREAU SHALL BE FORWARDED TO THE LANDLORD'S AGENT AND TO THE TENANT'S C. EQUIPMENT

- SPRINKLER HEADS

  A ALL SPRINKLER HEADS SHALL BE NEW (EXISTING HEADS SHALL BE

  REPLACED AS INCESSARY) U.L.F.M. LISTED AND APPROVED AUTOMATIC

  SPRAY TYPE AS MANUFACTURED BY CENTRAL SPRINKLER CO., GLOBE,

  GRINNELL, RELIABLE, STAR, OR VIKNIC.

  B. ALL SPRINKLER HEADS SHALL BE FAILED FOR 165°F UNILESS INDICATED

  OTHERWISE ON DRAWINGS OR REQUIRED BY LOCAL CODES:

  ALL SAFEN FLOORS HEADS SHALL BE FAILED FOR 165°F UNILESS INDICATED

  OTHERWISE ON DRAWINGS OR REQUIRED BY LOCAL CODES

  FINISH TO MATCH AND THE COURSE OF THE START APPLIED OF THE START OF THE START AND THE START OF THE START AND THE START OF THE
- FINISHED CEILING (SALES AREA) FULLY RECESSED/CONCEALED TYPE
   FINISHED CEILING (NON-SALES AREA) SEMI-RECESSED TYPE
   NO-CEILING CHROME UPRIGHT TYPE.

NOTE: SEMI-RECESSED HEADS SHALL PROTRUDE NO MORE THAN 1\*
BELOW LEVEL OF CEILING OF SOFFIT: ALL HORIZONTAL SPRINKLER
RUNS AT SIDEWALL SOFFITS SHALL BE CONCEALED WITHIN SOFFIT
FRAMING.

# D. GENERAL PIPING

PIPING

- ALL SPRINKLER LINES SHALL BE INSTALLED

- 1. WHEN COMPLETED, THE ENTIRE FIRE PROTECTION PPING SYSTEM SHALL BE HYDROS TATICALLY TESTED AS REQUIRED BY THE RILLES AND REGULATIONS OF THE HYDROS TATICALLY TESTED AS REQUIRED BY THE RILLES AND REGULATIONS OF THE LEAKAGE BY OTHER DEFECTS. HE CONTRACTORS SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF THE OTHER CONTRACTORS OR TO THE BUILDING, OR TO ITS CONTENTS, PEOPLE, ETC., CAUSED BY LEAKS AN ANY OF THE COUPMENT INSTALLED BY HIM. ALL REPAIRS OR REPLACEMENT OF DAMAGES SHALL BE AT THIS CONTRACTORS EXPENSE.

# DIVISION 15 - MECHANICAL

# SECTION 15500 HEATING, VENTILATION, AND AIR CONDITIONING

# A. SCOPE OF WORK

- THE HVAC CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR REASONABLY MHELE AND MOCIOTAL TO, THE FURNISHING, NISTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE MECHANICAL SYSTEMS A SHOWN ON THE ORAWINGS, CALLED FOR IN THE SPECIFICATIONS, ADMITTED TO HE COLOR PROPERTY OF A CONTRACT OF THE MECHANICAL SYSTEMS AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOTE LIMITED TO THE FOLLOWING REFER TO RESPONSBULITS SCHEDULE FOR EXACT RESPONSBULTE COLOR OF EXACT RESPONSBULTE.
- A. ROOFTOP UNITS, EQUIPMENT, AND APPURTENANCES.

  B. DUCTWORK, FITTINGS, DAMPERS, AND INSULATION.

  C. HYDRONIC PIPMO AND INSULATION.

  D. REFRICERANT PIPING (AS APPLICABLE, REFER TO PLANS).

  E. DIFFUSERS, GRILLES, AND REGISTERS.
- DIFFORENCE, GRILLES, AND REGISTERS.
  CURBS AND STEEL FRAMING FOR SUPPORT (AS APPLICABLE, REFER TO PLANS).
  TESTING, ADJUSTING, AND BALANCING.
- OPERATIONS MANUALS.
  TEMPERATURE CONTROLS AND RELATED DIAGRAMS.
  SEQUENCES OF OPERATION.
  CONNECTION TO ANY LANDLORD ENERGY MANAGEMENT SYSTEM.
- BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INFEGRATE THE VARROUS ELEMENTS OF THE HYAC SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID MITERFERENCES AND CONFRONTATIONS. 14 FLEXIBLE AIR DUCT

# B. HVAC EQUIPMENT 1. PRIMARY HEATING, VENTILATION AND AIR CONDITIONING UNITS.

- A PRIMARY HEATING, VENTILATION, AND AIR CONDITIONING UNITS ARE BE BY CARRIER AS SCHEDULED. ALL COMPRESSORS ARE TO INCLIDE A 5-YEAR EXTENDED WARRANTY.

  B. EQUAS EQUIPMENT AS MANUFACTURED BY TRANE OR YORK ARE ACCEPTABLE.

  C. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL
- ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPICE; WITH ALL DEVICES, APPUTENANCES, AND ACCESSORIES FROVODE TO MEET: DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DI AND SPECEFED HEREIN.
  1. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. ALL AIR CONDITIONING EQUIPMEN HAVE A CONDENSATE DRAW AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURERS DATA. SET PROWINGS FOR ADDITIONAL DEFAULS.
- MANUFACTURERS DATA. SEE DRAWNINGS FOR ADDITIONAL DETAILS. SECONDARY DANA PMAN BARE REQUIRED TO BE INSTALLED BENEATH ALL INDOOR AIR CONDITIONING EQUIPMENT WITH THE EXCEPTION OF VAV BOXES. SECONDARY PAMS ARE FOR PROFILE OF RETAILED BUT PROVIDE CONDENSATE PUMPS. AS REQUIRED. CONDENSATE SHALL BE DIRECTED TO PSIMS OR AS SECOFEED ON PLANS.
- VARIABLE AIR VOLUME BOXES (VAV)
- A WHERE SHOWN ON DRAWINGS, PROVIDE VAV B CONTROLS, HEATING COILS (FANS AS REQUIRED FLEXIBLE DUCT/PIPE CONNECTIONS SHALL BE PI CONTRACTOR. TOILET EXHAUST FANS

A. WHERE SHOWN ON DR COMPLETE WITH GRAVI

## 4 BASEBOARD CARR AND UNIT HEATERS

- WE DAY BOXES, ETC.) AND STRUCTURE.
- BBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM JOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES
- UIPMENT, ETC. ONSULT MANUFACTURER FOR APPLICATION DATA
- 7 CURBS AND STEEL FRAMING FOR SUPPORT A THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMMO REQUIRED TO INSTALL ALL HAZE COUPMENT AS DESCRIBED OR MIFFLED AND THE DRAWINGS. CURBS SHALL BE AMMINIMO OF 14 HOLD, OF THE SAME MANUFACTURER OF THE COUPMENT SUPPORTED. INSULATE UNDER THE COMPRESSARY SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT TOP OF CURBS ARE "DEAD" LEVEL. ALL PREVENTATIONS OF EASTINGS RICCURRES SHALL BE ONLY IN ALCORDANATOR.

# TO THE LANDLORD'S GUIDELINES AT THIS CONTRA

- C. METAL DUCTWORK NO FIBERGLASS DUCT ALLOWED NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. SIGNE/EART DE VALTIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER FRIOR TO FABRICATION OR INSTALLATION. ALL DUCT MANS ARE TO BE RECTANGULAR UNLESS NOTES OTHERWISE. ALL DUCT BEARNIES TO DIFFUSERS ARE TO BE ROUND RIGID DUCT.
- 2. EXCEPT AS OTHERWISE INDICATED, FABRICATE AND INSTALL RECTANGULAR DUC WITH GALVANUED SHEET STEEL, IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" OF THE LATEST EDITION. CONFORM TO THE
- EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO THE FOLLOWING PRESSURE CLASSIFICATIONS: (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE).
- A. SUPPLY DUCTS: 2 INCHES WATER GAUGE, POSITIVE PRESSURE B. RETURN AND EXHAUST DUCTS: 2 INCHES WATER GAUGE, NEGATIVE PRESSURE.
  PRESSURE TEST DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY
  SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 5%
  LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA
- . AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3:8" WIDE X 3:16" DEEP ON 12" CENTERS TO PREVENT VIRRATIONS.
- 5. INSTALL DOLIRLE THICKNESS TURNING VANES IN ALL RIGHT ANGLE FLROWS
- 6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACHAS STANDARDS. SUPPORT HORIZONTAL DUCTS WITHIN 2 FEET OF EACH ELDOW AND WITHIN FEET OF EACH ELDOW AND WITHIN FEET OF EACH BRACK! INTERSECTION USING DOUBLE STRAP HANGERS ON EACH SIDE OF FITTING SUPPORT VERTICAL DUCTS AT A MAXIMUM NETRYAL OF THEFE AND AT EACH FLOOR IN OWOOD SHALL BE USED TO SUPPORT FOR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND SEISMIC BRACEN DETAILS.
- 7. WHERE DUCTS PASS THROUGH ROOFS AND FLOORS, PROVIDE AS MINIMUM 1-1/2"X1-1/2" X1/8"S STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNULAR SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY ASSEMBLY FIRE RATING.
- ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR TIGHT WITH DAY CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.
- SOFT ELASTOMER BUTYL GASKET WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.
- 11 PROVIDE ACCESS TO ALLHO TORIZED DAMPERS, FRE DAMPERS, CONTRICAS, AND OTHER TITES NO BUCHYOKEN THAT REQUIRE SERVING OR RESPECTION IF THE ACCESS FANEL LOCATION IS EXPOSED TO THE SALES AREA IT MUST BE APPROVED BY THE TERM IS CONSTRUCTION MANAGER FROR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, CRILLES AND REDISTERS WITH PLASTER FRAMES MAY BE USED AS ACCESS LOCATIONS.

# 12 FLEXIBLE CONNECTIONS

13 FIRE DAMPERS

15 SUPPLY AIR TAKE-OFF FITTINGS

19. DUCTWORK INSULATION

20. SYSTEM CLEANOUT

HYDRONIC PIPING

2. PIPING

VALVES

A. PROVIDE CONICAL OR "BELL-MOUTH" TAKE-OF

A. FLEXIBLE AIR DUCT SHALL BE 1" INSULATED CLASS 1 AND RATE A TLEASBLE AND DUCL STARLE BY TINSULATED CLASS 1 AND RATED IT OPERATING PRESSURE OF THE SYSTEM. DUCL CONSTRUCTION INFLATON (PLASTIC, CLOTH, ALUMNUM) MUST ADHERE TO LOCAL CODES AND LANDLORDS TRECOVERMENTS AND BE INCLUDED AS SUCH IN THE B. B. FLEXBLE AR DUCT MAY ONLY BE USED IN VERTICAL APPLICATION PROOR APPROVAL FROM TENDIN'S CONSTRUCT DIM MANAGER TO TRANSPORT OF THE STARLE DUCT SHALL NOT EXTEND OVER 10 AND THE STARLE DUCT SHALL NOT SHALL NOT

- A FLEXBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT IF ANS, ROOFTOP UNITS, ARI HANDLERS, FAM POWERED VAN DOXES, ETC. JAND DUCTS OR CASNOS. ALSO, PROVIDE FLEXBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS. B. FLEXBLE CONNECTIONS SHALL CONSTRUCTED OR FLOPRENE-CENTED FLAWERFOOF FABRIC, PROVIDE ADEQUATE JOINT FLEXBLITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION. FLEXIBLE CONNECTION IS TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.
  - - THERMOMETERS DIE CAST ALUMINUM, 9" INDU

# 5. GENERAL INSTALLATION

- A PROVIDE PRIMARY FIRE DAMPERS WHERE NDICATED OR REQUIRED BY CODES. DAMPERS SHALL BE DESIGNED FOR HORIZONTAL OR VERTICAL FLOW CODES. DAMPERS SHALL HAVE THE BLADES OUT OF THE ARTS IREAM AND A 165°F FUSBLE LINK, TYPE A, AS IMMINIM.

  C PROVIDE ALL INCESSARY FERMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS.

  PROVIDE DOLT ACCESS DOORS IN AN ACCESSABLE LOCATION FOR ALL FIRE DATE OF THE PROVIDED OF THE ARTS IN THE PROVIDED OF THE ARTS IN THE PROVIDED OF THE PRO

  - 5. INSULATION
    A. ALL HYDROWIC PIPING FOR CHILLED WATER, AND/OR HEATING WATER, VALVES, FITTINGS, AND ACCESSORIES SHALL BE INSULATED. FOR PIPIE SIZES SIP TO 2 INCHES, INSULATE WITH INCIT HILD KING-23 @ 175° F BERGALASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRER, FOR PIES SIZES AND SIZES AND VAPOR BARRIER. FOR WITH ALL SERVICE JACKET AND VAPOR BARRIER.
    SIZES SIZES SIZES SIZES SIZES AND VAPOR BARRIER.
    SINSULATION AT ALL HANGERS FOR PIPING 2 IZ ON FILES AND LARGER SHALL BE HARD AND NON-COMPRESSIBLE.
    CALL INSULATION SHALL HAVE A LAME SIRRED AR ATING OF NOT MORE THAN 25 AND A SIZES OF SIZES AND A SIZES AND A SIZES OF SIZES AND A SIZES AND A SIZES OF SIZES AND A SIZES OF SIZES AND A SIZES AND A SIZES OF SIZES OF SIZES AND A SIZES AND A SIZES OF SIZES AND A SIZES OF SIZES AND A SIZES

E REFRIGERANT PIPING PROVIDE A COMPLETE REFRIGERANT PIPING SYSTEM BETWEEN INDOOR FAN UNITS AND OUTDOOR CONDENSING UNITS, IF APPLICABLE PROVIDE OIL, REFRIGERANT CHARGE AND TEST SYSTEM. REFER TO PLANS TO DETERMINE IF A REFRIGERANT PIPING SYSTEM IS REQUIRED. ILL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED

# 2. MATERIALS

D REGISTERS AS SCHEDULED. DEVICES FRAMES AND ALL ACCESSORIES. FINISH

ANUFACTURERS: TITUS IS SPECIFIED, EQUALS BY METALAIRE

WHERE DUCTWORK IS SPECIFICALLY NOTED AS MEDIUM PRESSURE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACKA STANDARDS FOR A PRESSURE RATING OF 3 INCHES WATER COLUMN MINIMUM OR LARGER AS REQUIRED B LANDLORD.

AS REGISTED & LANDLUND.

ALL GAUGES AND REINFORCEMENT MUST MEET WITH THE LATEST EDITION
OF SMACNA STANDARDS FOR MEDIUM PRESSURE DUCT AND WITH THE
LANDLORD'S CRITERIA.

A. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY WITH PEPA 90A.

B DUCT SIZES SHOWN ON DRAWNINGS ARE INSIDE CLEAR DMERSIONS.

BUSINESS SHOWN ON DRAWNINGS ARE INSIDE CLEAR DMERSIONS.

INSULATE SUPPLY AND RETURN AR RECTANGULAR DUCTMORK DUCTV

SHALL BE INTERNALLY LINED WITH 1º THICK ACCOUSTICAL LINER.

IF REQUIRED DUCTMORK SHALL BE EXTERNALLY WRAPPED WITH 1.72\*

THICK FOL FACED FIBERGLASS INSULATION IN PLACE OF ACCOUSTICAL
LINER.

ALL ROUND AND OUTSIDE AR DUCTWORK ABOVE THE CELLING SHALL BE EXTERNALLY INSULATED WITH A MAIMAIN OF IT THEX. 1-12 LE DENSITY AND A CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL SHALL OF THE CONTROL SHALL OF THE THE CONTROL OF THE CONTROL SHALL OF THE CONTROL OF THE CONTROL SHALL OF THE CONTROL OF T

D. DUCKWORK LOCATED IN THE CONDITIONED SPACE SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED ON PLANS. INSULATE ALL DUCT DROPS OR THE FIRST 20 FEET OF DUCT AT THE HVAC UNITS IN ALL CASES.

. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM C 411, OR AS REQUIRED BY LOCAL CODES.

DUCTWORK AND AIR HANDLING EQUIPMENT IS TO BE CLEANED OUT AND BLOWN OUT BEFORE PAINTING IS STATED BY THE GENERAL CONTRACT B. FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED.

A GATE VALVES, 2-INCH AND SMALLER: CLASS 150, BODY AND UNION BONNET OF ASTIM B 82 CAST BRONZE WITH THREADED OR SOLDER ENDS, INTEGRAL SEAT, RENEWABLE SOLD BRONZE WEDGE DESC, RISING STEM, SCREWED BONNET AND RE-PACKABLE UNDER PRESSURE. BALL VALVES ARE ACCEPTED AS AN ECUAL SUBSTITUTION.

ACCEPTED AS AN EQUIAL SUBSTITUTION OF GREAT VALVES, 21/2 MOI AND LANGER CILLSS 125 CAST IRON BODY GREAT VALVES, 21/2 MOI AND LANGER CILLSS 125 CAST IRON BOTH, FLAN SWING CHECK VALVES, 2 MOI AND SMALLER, CASS 150. CAST BRONZE BODY AND CAP CONFORMING TO ASTIM B & WITH HORIZON TALL SWING SYLVEN AND CAP CONFORMING TO ASTIM B & WITH HORIZON TALL SWING SYLVEN AND CAP CONFORMING TO ASTIM B & WITH HORIZON TALL SWING SYLVENTERN REPORTED RESIDENCE AND HAVING THERADED OR SOLVEN AND SWING SYLVEN AND SWING S

ENDS.
SWING CHECK VALVE, 2-12 INCH AND LARGER: CLASS 125 CAST RON BODY AND BOLTED CAP HORIZONTAL SWING, RENEWABLE BRONZE DISC, PLANCED ENDS AND CAPABLE OF ENG REFITIED WHILE THE VALVE COMBINATION BALANCING AND SHIT-OFF YALVES. BELL S GOSSETT CRUIT SETTEM BY WITH LORGING AND SHIT-OFF YALVES. BELL S GOSSETT CRUIT SETTEM BALANCE WHELE MUST BE INCLIDED WITH O SM MANIVAL.

I TOW METERS ELECTION OF SOME THE PROPERTY OF THE PROPERTY

- A REFRIGERANT PIPING SHALL BE TYPE 1" DRAWN COPPER TUBING (AST BISN) WROUGHT COPPER OR CAST BRONZE FITTINGS (ANSI BIS 22), WIT SLETOS A SQUERED JOINTS S. SERVICE VALVES, CHARGING PORTS, FILTER DEER, SIGHT CLASS, AND A THERMOSTATIC EXPANSION VALVE (TXV) SHALL BE INSTALLED FOR EACH SYSTEM AS A MINIMUM.
- 3. INSTALLATION

  A SIZE LINES WITH ADEQUATE LIFT TRAPS AND DOUBLE SUCTION RISERS INCCESSARY TO MEET THE MEEDS OF EQUIPMENT SPECIFED, FIELDING INC.

  B. PRESSURE TEST FOR LEAKS WITH AN INERT GAS AT 250 PSIG. REDO. LEAKING, JOINT SAND RETEST WITH SYSTEMS IN SIGHT. EVACUATE GAS AND CHARGE SYSTEM RE-TEST SYSTEM AND CHECK FOR LEAKS WITH HALDIE LEAK PRESSURE THE LEAKING, JOINT SHOTH SEE CONCEINED.

  C. LIPON COMPLETION OF TESTING, BUT BEFORE INSULATION IS APPLIED, PIPON GOVERNING AUTHORITY AS INCESSARY.

  D. REFRIGERANT LINES SHALL BE INSULATED WITH 18 FM HICK RUBATEX ARMSTRONG REFRIGERANT PPE INSULATION IN ACCORDANCE WITH

# F. SYSTEM TESTING ADJUSTING AND BALANCING

- SYSTEM TESTING, ADJUSTING, AND BALANCING

  IT TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR WHO IS CURRENTLY LICENSED ASSOCIATED ARE REALANCING SOURCE, (ARBO, OF ANTIONAL ENVIRONMENTAL BALANCING SOURCE, (ARBO, OF ANTIONAL ENVIRONMENTAL BALANCING SOURCE, AND DONE IN ACCORDANCE ALL COSTS FOR TESTING SHALL BE REVIEWED IN ACCORDANCE ALL COSTS FOR TESTING SHALL BE RED BY THE HYAC CONTRACTOR.

  THE HYAC CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIGHT OF THE ALL WORLD SHALL THE ALL COSTS FOR THE SHALL COSTS FOR THE SHALL S
- BALANCE AIR AND WATER QUANTITIES TO WITHIN + 5% OF THAT INDICATED ON THE DAYMINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS, OR THE ADDITION OF DAMPERS REQUIRED TO ACHEVE SPECIFIED FLOW RATES SHALL BE PERFORATED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST TO THE TENANT.
- THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING
- A AABC OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF PROVIDE A COMPLETE HYDRONIC PIPING SYSTEM IF APPLICABLE. REFER TO PLANS TO DETERMINE IF A HYDRONIC SYSTEM IS REQUIRED.
- A ARIS OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.

  BINTERIMENTATION LIST WITH LAST CALIBRATION DATES.

  MAKE AND MODEL NUMBERS OF ALL HIVAC FOUPMENT TESTED.

  AR CHA MAID STATIC PRESSURE READMISS, DISCHARGE AND SIGNATION OF THE CONTRACT AND STATIC PRESSURE READMISS, DISCHARGE AND THE UNIT.

  MOTION NAMEPLATE DATA WITH ACTUAL FELLO VOLTAGE AND CONTRACT AND STATIC PROPERTY OF THE WASTE AND THE ACTUAL TO STATIC AND THE ACTUAL THE WASTE AND THE ACTUAL PPING

  A WYDOUND PPING FOR CHILLES WATER AND/OR HEATING WATER AND/OR

  A WYDOUND SHEET WATER SHALL BE AST MA, 400 SONEDLIE 40 ERRY BLACK
  STEEL PIPE WHITH PLANE HORS. SISTALL STEEL PIPE WHIT WELDED

  JOHNS WHERE PIPE IS 2.12 MCH AND LANGER. NISTALL STEEL PIPE WHITH EINEDD

  JOHNS WHERE PIPE IS 2.12 MCH AND LANGER. NISTALL STEEL PIPE

  WHITH THREADED JOHNS TAN DETTINGS OR INSTALL TYPE YE VANIBALED.

  TEMPERED COPPER TUDE WHITH SLAUS, JOHN IS 7012 MCH AND SMALLER.

  PEING SHALL BE IN STRICT CONFORMANCE WHITH ASTM, ASK AND IN

  LAND/ORD'S REQUIREMENTS, WHICHEVER IS MOST STRINGENT. UNIONS OF

  LAND/ORD'S REQUIREMENTS, WHICHEVER IS MOST STRINGENT. UNIONS OF

  ELANGES MUST BE USED AT EQUIPMENT CONNECTIONS WHERE SERVICE OR

  BE ALL PIPPING AND EQUIPMENT SHALL BE PRESSURE TESTED WITHOUT LEAKAGE
  ATA MINIMUM PRESSURE OF 129 FIL.

  C. ALL HYDRONIO PIPPING AND EQUIPMENT TO CONNECTION TO THE

  AND CONTROL OF THE AND AND AND AND PIPPING AND EQUIPMENT FOR TO CONNECTION TO THE

  AND CONTROL OF THE AND AND AND AND PIPPING AND EQUIPMENT TO CONNECTION TO THE

  WHIT WATER FROM THE LANDLONDS SYSTEM WHITE WATER FROM THE LANDLONDS SYSTEM SHALL BE PRESSURE THE FILE OF THE SHALL OF THE LANDLOND SON THE LANDLONDS SYSTEM ON THE AND AND AND PIPPING FILE OF THE AND AND AND PIPPING FILE OF THE LANDLOND SON THE MILE AND CORDS SYSTEM SHALL BE PIPPING AND EQUIPMENT FOR THE LANDLOND SON THE MILE SENTENCE TO THE LANDLOND SYSTEM WHITH WATER FROM THE LANDLONDS SYSTEM WHITH WATER FROM THE LANDLOND SYSTEM WHITE SYSTEM SHALL BE READY TO BE CONNECTED TO THE LANDLONDS SYSTEM.
  - COOLING.
    WATER BALANCE DATA INCLUDING GPM WITH INLET AND OUTLET TEMPERATURE AND PRESSURE READINGS (WHERE APPLICABLE).
    MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT
    J. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETU WHERE DUCTED).

    K. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.
  - . REPORT SHALL INCLUDE VAV BOX AIRFLOW SENSOR DIFFERENTIAL PRESSURE READING AT MAX. AND MIN. COOLING. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.
  - THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL.
  - THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHA RECHECK ANY TIEAS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.
    FINAL BALANCIE REPORT SHALL BE INCLUDED IN THE OPERATION 8

# G. FINAL HVAC INSPECTIONS I ASDE FROM NORMAL INTERIM INSPECTIONS OF WORK IN PLACE, THE TENANT SHALL HAVE THE RICHIT TO AN INDEPENDENT HAVE ON THE ASDE THE HE MISSIED HAVE IN SELLALITION UPON CONTRACTOR INSPECT THE FINISHED HAVE ON STEAL LALID HOUSE OF THE MISSIES HAVE ASDE TO SHARD THE MISSIES HAVE OF THE MISSIES HAVE OF THE MISSIES HAVE OF THE MISSIES HAVE OF THE MISSIES HAVE ASDE THE MISSIES HAVE OF THE MIS

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# Soft Surroundings Soft Surroundings BILTMORE VILLAGE to broke STEET SPACE #160 ASHEVILE, NC 2803 4,740 SQUARE FEET

DRAWINGS ISSUED FOR: design dev.
bidding
permits/IJ. review
construction

REVISIONS:

Prj. no. 18-41-031

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MECHANICAL SPECIFICATIONS

M3.0