

15010 GENERAL PROVISIONS

- A. FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED AS SHOWN ON THE DRAWINGS AND SPECIFIED IN DIVISION 15.
- B. ALL WORK SHALL BE COMPLETE AND SHALL BE LEFT IN OPERATING CONDITION.
- C. INCLUDE ALL PARTS AND LABOR WHICH ARE INCIDENTAL AND NECESSARY FOR A COMPLETE AND OPERABLE INSTALLATION EVEN THOUGH NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.
- D. ARRANGE WITH APPROPRIATE UTILITY COMPANIES TO PROVIDE TEMPORARY AND PERMANENT UTILITY SERVICES AS REQUIRED AND COORDINATE THEIR INSTALLATION WITH CONSTRUCTION PROGRESS OF THIS PROJECT. PAY ALL FEES AND COSTS CHARGED BY UTILITY COMPANIES FOR SUCH SERVICES.
- E. OBTAIN ALL TEMPORARY AND PERMANENT PERMITS AND LICENSES REQUIRED IN CONNECTION WITH THIS DIVISION'S WORK. PAY ALL FEES AND EXPENSES REQUIRED FOR SUCH PERMITS AND LICENSES.
- F. ARRANGE WITH APPROPRIATE AGENCIES FOR REGULATING AGENCIES AND/OR REGULATORS. PAY ALL CHARGES FOR INSPECTIONS BY REGULATING AGENCIES OF INSTALLATIONS OF PLANS SPECIFICATIONS.
- G. PROVIDE THE OWNER WITH A CERTIFICATE OF FINAL INSPECTION AND APPROVAL BY ENFORCEMENT AUTHORITIES.
- H. MEET OR EXCEED ALL CURRENT APPLICABLE CODES, ORDINANCES AND REGULATIONS FOR ALL INSTALLATIONS. PROMPTLY NOTIFY THE ENGINEER, IN WRITING, IF THE CONTRACT DOCUMENTS APPEAR TO CONFLICT WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR ASSUMES ALL RESPONSIBILITY AND COSTS FOR CORRECTING NON-COMPLYING WORK INSTALLED WITHOUT NOTIFYING THE ENGINEER.
- I. HIGHER QUALITY OF WORKMANSHIP AND MATERIALS INDICATED IN THE CONTRACT DOCUMENTS TAKES PRECEDENCE OVER THAT ALLOWED IN REFERENCED CODES AND STANDARDS.
- J. FURNISH: TO OBTAIN, COORDINATE, SUBMIT THE NECESSARY DRAWINGS, DELIVER TO THE JOB SITE IN NEW CONDITION READY FOR INSTALLATION, UNLOAD AND UNPACK, AND GUARANTEE.
- K. INSTALL: TO RECEIVE AT THE JOB SITE, STORE, ASSEMBLE, ERECT, SET IN PLACE, ANCHOR, APPLY, FINISH, PROTECT, CLEAN, TEST, START-UP, AND MAKE READY FOR OWNER'S USE.
- L. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONAL DIFFERENCES, WEIGHTS, ELECTRICAL REQUIREMENTS AND ANY OTHER RESULTING CHANGES, WHEN USING EQUIPMENT OTHER THAN THAT SCHEDULED ON THE DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED AS A RESULT OF SUBSTITUTIONS.
- N. BEFORE SUBMITTING A PROPOSAL ON THE WORK CONTEMPLATED, EXAMINE THE SITE OF THE PROPOSED WORK AND BECOME THOROUGHLY FAMILIAR WITH EXISTING CONDITIONS AND LIMITATIONS. NO EXTRA PAYMENT WILL BE ALLOWED BECAUSE OF MISUNDERSTANDING AS TO THE AMOUNT OF WORK INVOLVED NOR HOLDERS LACK OF KNOWLEDGE OF EXISTING CONDITIONS WHICH COULD HAVE BEEN DISCOVERED OR REASONABLY ANTICIPATED PRIOR TO BIDDING.
- O. MECHANICAL EQUIPMENT AND SYSTEMS SHOWN ON THE DRAWINGS AS EXISTING, HAVE BEEN BASED ON EXISTING PLANS, AND MAY NOT BE INSTALLED AS ORIGINALLY SHOWN, IF THE CONTRACTOR ASSUMES RESPONSIBILITY TO VISIT THE SITE AND MAKE EXACT DETERMINATION OF THE EXISTENCE, LOCATION AND CONDITION OF SUCH FACILITIES PRIOR TO SUBMITTING BID.
- P. OBTAIN THE DRAWINGS AND SPECIFICATIONS IN DIVISION 15 AND OTHER TRADES FOR CORRELATING INFORMATION AND LAY OUT WORK SO THAT IT WILL COORDINATE WITH OTHER TRADES. VERIFY DIMENSIONS AND CONDITIONS (I.E., FINISHED CEILING HEIGHTS, FLOOR AND FOUNDATION ELEVATIONS, BEAM DEPTHS, ETC.) WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- Q. DRAWINGS MAY NOT SHOW ALL WORK TO BE DONE. CONTRACTOR SHALL INSTALL PIPING AND DUCTWORK TO ACCOMMODATE THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES, WITH ALL RELATED OFFSETS AND WITHOUT EXCESS COST TO THE OWNER.
- R. OBTAIN EXACT LOCATION OF CONNECTION TO EQUIPMENT, FURNISHED BY OTHERS, FROM THE PERSON FURNISHING THE EQUIPMENT.
- S. GUARANTEE AND MAINTAIN THE STABILITY OF WORK AND MATERIALS AND KEEP SAME IN PERFECT REPAIR AND CONDITION FOR THE PERIOD OF ONE (1) YEAR AFTER THE FINAL COMPLETION OF THE WORK AS ENDORSED BY SIGNATURE OF THE FINAL CERTIFICATE BY THE ARCHITECT.
- T. DEFECTS OF ANY KIND DUE TO FAULTY WORK OR MATERIALS APPEARING DURING THE ABOVE MENTIONED PERIOD SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR AT HIS OWN RISK AND AT THE ENTIRE SATISFACTION OF THE OWNER AND ENGINEER, INCLUDING DAMAGE TO THE FINISH OR TO THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS.
- U. CONTROL AND INTERLOCK WIRING PROVIDED BY THE MECHANICAL CONTRACTOR, UNLESS OTHERWISE SPECIFIED.
- V. PROVIDE ONLY PRODUCTS FROM MANUFACTURERS WITH LOCAL REPRESENTATION THAT CAN PROVIDE COMPLETE COVERAGE, PARTS AND LABOR, FOR REPLACEMENT AND SERVICE OF THEIR PRODUCTS. PROVIDE ONLY EQUIPMENT THAT WILL FIT IN THE SPACE AVAILABLE AND BE COMPLETELY SERVICEABLE. BRING ANY CONFLICTS TO THE ENGINEER'S ATTENTION.
- X. COORDINATE/SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE ANY DISRUPTIONS. CONFINE ALL INTERRUPTIONS TO THE NEAREST FEASIBLE AREA. INTERRUPTIONS SHALL BE LIMITED TO THE MINIMUM NECESSARY TO PROVIDE CONTINUITY OF SERVICE.
- Y. INSPECT ALL AREAS AFFECTED BY THE INTERRUPTIONS AND RETURN ALL AUTOMATICALLY CONTROLLED EQUIPMENT, ELECTRICALLY OPERATED EQUIPMENT TO THE SAME OPERATING CONDITION PRIOR TO THE INTERRUPTION.
- Z. NO FIRE SPRINKLER OR FIRE ALARM SYSTEMS ARE TO REMAIN INACTIVE AT THE END OF THE WORK DAY. ASSURE THAT THE FIRE SPRINKLER OR FIRE ALARM SYSTEM IS OPERATIONAL AT THE END OF EACH WORK DAY. COORDINATE WITH THE ARCHITECT AS TO THE LOCATION OF SUCH DEVICES.
- AA. PROVIDE NEW MATERIAL AND EQUIPMENT, UNLESS NOTED OTHERWISE. PROTECT EQUIPMENT AND MATERIAL FROM DAMAGE, DIRT AND THE WEATHER.
- AB. PROVIDE THE HIGHEST QUALITY WORKMANSHIP AND PERFORM ALL WORK ONLY BY SKILLED MECHANICS. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND CURRENT CODES.
- AC. THE ENGINEER RESERVES THE RIGHT TO REJECT MATERIAL OR WORKMANSHIP NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- AD. ALL PIPING AND DUCTWORK SHALL BE RUN IN THE MOST DIRECT AND STRAIGHT MANNER POSSIBLE MAINTAINING PROPER GRADING.
- AE. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT MOST PIPING AND DUCTWORK BE CONCEALED, WHERE EXPOSED, RUN AS CLOSE TO CEILING AND/OR WALL AS POSSIBLE PARALLEL WITH ADJACENT STRUCTURAL OR ARCHITECTURAL ELEMENTS.
- AF. DO NOT INSTALL PIPING OR DUCTWORK IN ANY SWITCHBOARD, TRANSFORMER, ELEVATOR EQUIPMENT, ELECTRIFIC OR ELECTRICAL CONTROL AREA OR IN A BRANCH SERVICE TO SUCH EQUIPMENT.
- AG. DO NOT INSTALL PIPING OR DUCTWORK ABOVE SWITCHBOARDS, PANELBOARDS, CONTROL PANELS, MOTOR CONTROL CENTERS, ETC.
- AH. CONDUCT WORK TO FACILITATE MAINTENANCE, REPAIR OR REPLACEMENT OF EQUIPMENT. PROVIDE ACCESS FOR DEVICES THAT REQUIRE MAINTENANCE. FOR CONCEALED DEVICES, VERIFY THAT ACCESS PANELS ARE IN PLACE AND OPERABLE.
- AI. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- AJ. PERFORM ALL CUTTING AND REMOVAL WORK SPECIFICALLY DELEGATED TO THE CONTRACTOR BY THE GENERAL CONTRACTOR. OBTAIN SPECIAL PERMISSION FROM THE STRUCTURAL ENGINEER BEFORE CUTTING STRUCTURAL MEMBERS OR FINISHED MATERIAL. PERFORM ALL PATCHING IN SUCH A MANNER AS TO LEAVE NO VISIBLE TRACE AND RETURN THE AREA AFFECTED TO THE CONDITION OF UNDISTURBED WORK. PERFORM ALL PATCHING BY WORKERS EXPERIENCED, SKILLED, AND LICENSED FOR THE PARTICULAR TYPE OF WORK INVOLVED. REPAIR WORK WILL NOT BE ACCEPTED.
- AK. PATCH ALL HOLES LEFT AS A RESULT OF DEMOLITION OF MECHANICAL EQUIPMENT AND DEVICES.
- AL. DRILL ALL HOLES IN MASONRY WITH HEAVY DRILL. IMPACT TOOLS ARE NOT ALLOWED. CORE DRILL ALL HOLES IN MASONRY AND CONCRETE FOR MECHANICAL PENETRATIONS. PROVIDE AND DISPOSE OF ALL WATER REQUIRED FOR CORE DRILLING. COORDINATE WITH OTHER TRADES TO PREVENT DAMAGE TO WORK.
- AM. PREVENT THE SPREAD OF DUST, DEBRIS, AND OTHER MATERIAL INTO ADJACENT AREAS.
- AN. REPLACE ALL CEILING DAMAGED DURING INSTALLATION OF WORK, WITH NEW TILE.
- AO. REFINISH ALL MECHANICAL EQUIPMENT DAMAGED DURING SHIPPING AND/OR INSTALLATION TO ITS ORIGINAL CONDITION. REMOVE ALL RUST, PRIME, AND PAINT PER MANUFACTURER'S RECOMMENDATIONS FOR FINISH EQUAL TO ORIGINAL.
- AP. DO NOT USE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS PROVIDED IN THIS SCOPE OF WORK FOR TEMPORARY HEATING, VENTILATING AND AIR CONDITIONING DURING CONSTRUCTION.
- AQ. PROTECT OPENINGS AND EQUIPMENT FROM DESTRUCTION, BREAKAGE, MISUSE, DAMAGE OR BLEMISHES. PROTECT MATERIALS AND EQUIPMENT IMMEDIATELY UPON RECEIPT AT THE JOB SITE OR IMMEDIATELY AFTER THEY HAVE BEEN REMOVED FROM THEIR SHIPPING CONTAINERS, UNLESS NOTED OTHERWISE. KEEP THEM CLEAN AND UNDAMAGED UNTIL FINAL ACCEPTANCE OF THE ENTIRE PROJECT BY THE OWNER. WHEN A PORTION OF THE BUILDING IS OCCUPIED BY THE OWNER BEFORE SUBSTANTIAL COMPLETION OF THE ENTIRE PROJECT, MAKE ARRANGEMENTS TO TRANSFER RESPONSIBILITY FOR PROTECTION AND HOUSEKEEPING FOR THE OCCUPIED PORTION.
- AR. PROTECT PIPE, DUCT AND EQUIPMENT OPENINGS WITH TEMPORARY PLUGS OR CAPS. KEEP OPENINGS COVERED UNTIL PERMANENT CONNECTIONS ARE COMPLETE.
- AS. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO MECHANICAL EQUIPMENT, MATERIALS OR WORK UNTIL FINAL ACCEPTANCE OF THE ENTIRE PROJECT BY THE OWNER.
- AT. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH, CAUSED BY HIS EMPLOYEES OR WORK, AT ALL TIMES. REMOVE RUBBISH, TOOLS, SCAFFOLDING, AND SURPLUS WASTE FROM AND ABOUT THE BUILDING, AND LEAVE WORK AREAS "BROOM CLEAN" OR ITS EQUIVALENT UPON COMPLETION OF THE WORK. CLEAN MECHANICAL EQUIPMENT AND REMOVE TEMPORARY DECONTAMINATION.
- AU. IN CASE OF DISPUTE, THE OWNER WILL REMOVE THE RUBBISH AND CHANGE THE COST TO THE CONTRACTOR.
- AV. BEFORE START-UP, LUBRICATE, CHARGE, AND FILL SYSTEMS AS SPECIFIED AND ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
- AW. CLEAN, DISINFECT, AND TEST ALL PLUMBING AND PIPING SYSTEMS.
- AX. BEFORE TESTING, ADJUSTING AND BALANCING IN ACCORDANCE WITH THAT SECTION.
- AY. OPERATE EQUIPMENT AND SYSTEMS IN ALL THEIR OPERATING MODES, TO VERIFY PROPER OPERATION, DRIVING AND FIELD OBSERVATION AND OWNER INSTRUCTIONS.
- AZ. ATTEND PRE-TESTING CONFERENCE AS SCHEDULED BY TESTING, ADJUSTING AND BALANCING CONTRACTOR.
- AA. PROVIDE ASSISTANCE TO TEST, ADJUSTING AND BALANCING CONTRACTOR BY MAKING ADJUSTMENTS TO SYSTEM AND SYSTEM COMPONENTS REQUIRED FOR ACHIEVING DESIGN GOALS.
- BB. ACCEPTABLE PERFORMANCE OF ANY TEST SHALL BE ACHIEVED WITH NO CORRECTIONS AND THE TEST SHALL BE REPEATED UNTIL ACCEPTABLE PERFORMANCE IS ACHIEVED.
- BC. FULLY INSTRUCT THE OWNER'S DESIGNATED PERSONNEL IN THE PROPER USE OF THE MECHANICAL SYSTEM AT THE TIME IT IS PUT INTO SERVICE. PROVIDE INSTRUCTIONS USING COMPLETE INSTRUCTIONS AND FACTORY TRAINED PERSONNEL.
- BD. OBTAIN DOCUMENTATION OF INSTRUCTIONS IN OPERATION FROM MAINTENANCE PERSONNEL.
- BE. OBTAIN A WRITTEN STATEMENT FROM THE OWNER THAT HIS DESIGNATED PERSONNEL HAVE BEEN INSTRUCTED.
- BF. SUBMIT COMPLETED BOUND OPERATING AND MAINTENANCE MANUALS TO OWNER INCLUDING SHOP DRAWINGS, WIRING DIAGRAMS, PIPING AND WIRING SCHEDULES, TESTING AND BALANCE REPORTS, SYSTEM VALUATION DRAWINGS, TEST RECORDS, ETC.

15020 DEMOLITION

- A. FURNISH LABOR, EQUIPMENT, AND MATERIALS REQUIRED FOR CUTTING, DEMOLITION, REMOVAL, PATCHING, AND RESTORATION WORK NECESSARY TO ACCOMPLISH AND COMPLETE ALL DEMOLITION, INCLUDING ANY RELOCATION OR REPAIR OF EXISTING MATERIALS, EQUIPMENT, SYSTEMS, AS WELL AS THE DISPOSITION OF SALVAGED MATERIALS OR DEBRIS.
- B. ACCOMPLISH ALL WORK OF CUTTING, REMOVAL, DEMOLITION, RELOCATION, PATCHING, AND RESTORATION BY USING ONLY MECHANICS SKILLED IN THE TRADES REQUIRED. PROVIDE FOR THE SAFETY OF THE EXISTING BUILDING AND PERSONNEL, AS WELL AS FOR NEW CONSTRUCTION AS A RESULT OF WORK.
- C. WHERE THE WORK OF REMOVALS, DEMOLITION, CUTTING AND SIMILAR WORK INVOLVES STRUCTURAL CONSIDERATIONS, CONSULT WITH STRUCTURAL ENGINEER. EXERCISE EXTREME CARE TO AVOID DAMAGE AND PRESERVE THE SAFETY OF THE STRUCTURE, AND OF ALL PERSONNEL. PARTICULAR CARE MUST BE TAKEN WHERE THE DEMOLITION OR REMOVALS OCCUR ADJACENT TO EXPOSED AREAS.
- D. UTILIZE COMPETENT AND QUALIFIED TECHNICAL ASSISTANCE TO DEVELOP SAFE METHODS AND TECHNIQUES TO ACCOMPLISH THE WORK, INCLUDING TEMPORARY SHORING AND SUPPORTS, METHODS OF REMOVAL AND OTHER CONSIDERATIONS. DESIGN AND PLACE ALL PERMANENT OR TEMPORARY SUPPORTS TO CARRY ALL LOADS DOWN TO SOUND BEARING.

15040 DUCTWORK INSULATION

- A. MATERIALS: CONFORM TO MAXIMUM FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50 IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.
- B. CONFORM TO LOCAL CODE AND ASTM STANDARDS FOR "K" VALUE, MOISTURE VAPOR TRANSMISSION, MAXIMUM MOISTURE ABSORPTION, JACKET, INSULATING TENACITY, AND ADHESIVE.
- C. INSTALL IN ACCORDANCE WITH NFMA NATIONAL INSULATION STANDARDS.
- D. EQUIVALENT PRODUCTS: CERTIWRAP, KNAUF, OWENS-CORNING.
- E. DUCTWORK EXPOSED IN MECHANICAL EQUIPMENT ROOMS OR FINISHED SPACES BELOW 10 FEET ABOVE FINISHED FLOOR: FINISH WITH CANVAS JACKET SIZED FOR FINISH PAINTING.
- F. EXHAUST FLOOR: FINISH WITH CANVAS JACKET SIZED FOR FINISH PAINTING.
- G. EXHAUST FLOOR: FINISH WITH CANVAS JACKET WITH 10 FT OF EXTERIOR OPENINGS (EXCEPT FOR KITCHEN RANGE HOOD EXHAUST SYSTEMS): FLEXIBLE GLASS FIBER BLANKET - EXTERNAL: 1-1/2 INCHES THICK.
- H. EXTERIOR AIR INTAKE DUCTS: 1. FLEXIBLE GLASS FIBER BLANKET - EXTERNAL: 3 INCHES THICK. 2. SUPPLY DUCTS - UNCONDITIONED/INDIRECTLY CONDITIONED SPACE: FLEXIBLE GLASS FIBER BLANKET - EXTERNAL: 1.5 INCHES THICK. 3. EXHAUST DUCTS - DIRECTLY CONDITIONED SPACE: NONE REQUIRED.
- I. TRANSFER DUCTS: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK.
- J. RETURN DUCTS FROM HVAC UNIT TO 2 FEET FROM EXTERIOR WALL: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK. ATTENTION: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK.
- K. OUTSIDE AIR INTAKE DUCTS: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK. LOCAL CODE OR ASHRAE STANDARD 90.1-2004, WHICHEVER IS MORE STRINGENT.

15050 PIPING INSULATION

- A. CONFORM TO MAXIMUM FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50 IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.
- B. CONFORM TO LOCAL CODE AND ASTM STANDARDS FOR "K" VALUE, MOISTURE VAPOR TRANSMISSION, MAXIMUM MOISTURE ABSORPTION, JACKET, INSULATING TENACITY, AND ADHESIVE.
- C. EQUIVALENT PRODUCTS: CERTIWRAP, KNAUF, OWENS-CORNING.
- D. INSTALL IN ACCORDANCE WITH NFMA NATIONAL INSULATION STANDARDS.
- E. EXTERIOR AIR INTAKE DUCTS: 1. FLEXIBLE GLASS FIBER BLANKET - EXTERNAL: 3 INCHES THICK. 2. SUPPLY DUCTS - UNCONDITIONED/INDIRECTLY CONDITIONED SPACE: FLEXIBLE GLASS FIBER BLANKET - EXTERNAL: 1.5 INCHES THICK. 3. EXHAUST DUCTS - DIRECTLY CONDITIONED SPACE: NONE REQUIRED.
- F. TRANSFER DUCTS: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK.
- G. RETURN DUCTS FROM HVAC UNIT TO 2 FEET FROM EXTERIOR WALL: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK. ATTENTION: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK.
- H. OUTSIDE AIR INTAKE DUCTS: FLEXIBLE GLASS FIBER DUCT LINER: 1/2 INCH THICK. LOCAL CODE OR ASHRAE STANDARD 90.1-2004, WHICHEVER IS MORE STRINGENT.

15100 PLUMBING PIPING

- A. SANITARY PIPING. 1. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT, FITTINGS: CAST IRON, JOINTS: HUB-AND-SPIGOT, SEAL: RUBBER RING. 2. CAST IRON PIPE: OSM 301, HUBLESS, FITTINGS: CAST IRON, JOINTS: NEOPRENE GASKET AND STAINLESS STEEL CLAMP AND SHIELD ASSEMBLIES. 3. ABS PIPE (BELOW GRADE): ASTM D2685, FITTINGS: ABS, JOINTS: SOLVENT WELD. 4. PVC PIPE (BELOW GRADE): ASTM D2685, FITTINGS: PVC, JOINTS: SOLVENT WELD WITH SOLVENT CEMENT. 5. COPPER TUBE (ABOVE GRADE): ASTM B88 TYPE 1, HARD TEMPER ONLY, EXCEPT THOSE MATERIALS SHALL NOT BE USED TO RECEIVE THE WASTES FROM URINALS NOR WASTES FROM WATER CLOSETS IN BATTERY, FITTINGS: CAST BRONZE, OR WROUGHT COPPER, JOINTS: SOLDER, GRADE 509. 6. WATER PIPING. 1. COPPER TUBING (BELOW GRADE): ASTM B88 TYPE "K" SOFT COPPER, FITTINGS: CAST COPPER, JOINTS: BRASS OR WROUGHT COPPER AND BRONZE, JOINTS: SOLDER. 2. COPPER TUBING (ABOVE GRADE): ASTM B88 TYPE "L" HARD DRAWN, FITTINGS: CAST COPPER, JOINTS: BRASS OR WROUGHT COPPER AND BRONZE, JOINTS: SOLDER. 3. NATURAL GAS PIPING. 1. STEEL PIPE (BELOW GRADE): ASTM A53 SCHEDULE 40 BLACK, FITTINGS: FORGED STEEL WELDED POLYETHYLENE TAPE. 2. STEEL PIPE (BELOW GRADE): ASTM A53 SCHEDULE 40 BLACK, 2 INCH AND SMALLER EXPOSED, FITTINGS: MALLEABLE IRON, JOINTS: THREADED. 3. STEEL PIPE (ABOVE GRADE): ASTM A53 SCHEDULE 40 BLACK, 2 INCH AND SMALLER CONCEALED, AND 2 1/2 INCH AND LARGER, FITTINGS: FORGED STEEL WELDING TYPE, JOINTS: WELDED. 4. STORM PIPING. 1. CAST IRON PIPE: ASTM A74 SERVICE WEIGHT, FITTINGS: CAST IRON, JOINTS: HUB-AND-SPIGOT, COMPRESSION TYPE, WITH NEOPRENE GASKETS OR LEAD AND OILUM. 2. CAST IRON RUBBER RING JOINTS: ASTM A74 SERVICE WEIGHT, FITTINGS: CAST IRON, JOINTS: NEOPRENE GASKET AND STAINLESS STEEL CLAMP AND SHIELD ASSEMBLIES. 3. ABS PIPE (BELOW GRADE): ASTM D2685, FITTINGS: ABS, JOINTS: SOLVENT WELD. 4. PVC PIPE (BELOW GRADE): ASTM D2685, FITTINGS: PVC, JOINTS: SOLVENT WELD WITH SOLVENT CEMENT. 5. COPPER TUBE (ABOVE GRADE): ASTM B88 TYPE 1, HARD TEMPER ONLY, EXCEPT THOSE MATERIALS SHALL NOT BE USED TO RECEIVE THE WASTES FROM URINALS NOR WASTES FROM WATER CLOSETS IN BATTERY, FITTINGS: CAST BRONZE, OR WROUGHT COPPER, JOINTS: SOLDER, GRADE 509. 6. VERIFY THAT EXCAVATIONS ARE TO REQUIRED GRADE, DRY, AND NOT OVER-DRAINED. 7. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS. 8. PROVIDE NON-CONDUCTING ELECTRICAL CONNECTIONS WHEREVER CONTACTING METALLIC METAL. 9. INSTALL WENT PIPING PENETRATING ROOF AND FLOOR TO MAINTAIN LEAK PROOF ASSEMBLY. 10. WHERE PIPE SUPPORT MEMBERS ARE USED TO STRUCTURAL BUILDING FRAMING, USE PIPE BRUSH AND APPLY ONE COAT OF ZINC RICH PAINT TO WELDING. 11. PROVIDE SUPPORT FOR UTILITIES. 12. REPAIR EXPOSED, UNFINISHED WALLS, AND ACCESSORIES READY FOR FINISH PAINTING. 13. PIPE VENTS FROM PRESSURE, BLOWN VENTS TO OUTDOORS AND TERMINATE IN WEATHER PROOF HOOD. 14. SLEEVE PIPE PASSING THROUGH PLUMBING WALLS AND FLOORS. 15. USE DRAINAGE PLUMBING CONNECTIONS AND FASTENERS ONLY IN ACCESSIBLE LOCATIONS. 16. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 17. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 18. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 19. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 20. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 21. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 22. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 23. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 24. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 25. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 26. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 27. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 28. PROVIDE UNIONS, COUPLERS, AND FITTINGS IN ACCESSIBLE LOCATIONS. 29. 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