

SECTION 15005 - MECHANICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- A. THIS SECTION APPLIES TO ALL SECTIONS OF DIVISION 15, "MECHANICAL" OF THIS PROJECT SPECIFICATION, UNLESS SPECIFIED OTHERWISE IN THE INDIVIDUAL SECTION.

1.2 GENERAL CONDITIONS AND SPECIAL CONDITIONS

- A. THE ACCOMPANYING GENERAL CONDITIONS, DIVISION -I AND/OR SPECIAL CONDITIONS OF THE SPECIFICATIONS SHALL APPLY TO AND FORM A PART OF THIS SECTION.
- B. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, COUNTY AND MUNICIPAL LAWS, ORDINANCES AND REGULATIONS AFFECTING THE INSTALLATION.
- C. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTIONS, AND CERTIFICATES OF INSPECTION. CERTIFICATES SHALL BE DELIVERED TO THE ARCHITECT.
- D. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE SAFETY AND GOOD CONDITION OF ALL WORK AND MATERIALS CONNECTED WITH HIS CONTRACT UNTIL SAME IS ACCEPTED OR OPERATED BY OWNER. HE SHALL USE PROPER PRECAUTION TO PROTECT HIS OWN WORK AND THAT OF OTHERS FROM INJURY AND SHALL MAKE GOOD WITHOUT EXPENSE TO THE OWNER ANY DAMAGE CAUSED BY HIMSELF OR HIS EMPLOYEES TO PERSON OR PROPERTY. HE SHALL COOPERATE WITH OTHER CONTRACTORS AND COORDINATE HIS WORK WITH OTHERS.
- E. THIS CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR AND REASONABLY INCIDENTAL TO PROPER COMPLETION OF ALL PLUMBING SYSTEMS, FIRE PROTECTION SYSTEMS, INSULATION SYSTEMS, AIR CONDITIONING, HEATING AND VENTILATING SYSTEMS AS SHOWN AND HEREIN SPECIFIED, EXCEPTING ONLY SUCH WORK OR MATERIALS SPECIFIED OR NOTED AS BEING DONE BY OTHERS.
- F. WHERE CONFLICTS OCCUR IN THESE SPECIFICATIONS, ON THE CONTRACT DRAWINGS, OR BETWEEN ANY OF THE CONTRACT DOCUMENTS, THE MATERIALS, EQUIPMENT AND LABOR OF GREATER QUANTITY AND HIGHER COST SHALL BE ASSUMED TO BE INTENDED AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

1.3 RESPONSIBILITY OF BIDDERS:

- A. BEFORE SUBMITTING PROPOSALS, EACH BIDDER SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND SHALL EXAMINE THE SITE OF WORK. HE SHALL BE FULLY INFORMED AS TO THE CHARACTER OF HIS WORK AND COORDINATION OF HIS WORK WITH THAT OF OTHER TRADES. NO CONSIDERATION WILL BE GIVEN AT A LATER DATE FOR ALLEGED MISUNDERSTANDINGS AS TO REQUIREMENTS OF WORK, MATERIALS TO BE FURNISHED OR CONDITIONS REQUIRED BY NATURE OF SITE. THE FAILURE OR OMISSION OF ANY BIDDER TO RECEIVE OR EXAMINE ANY FORM, INSTRUMENT,

WEST NAVARRE INTERMEDIATE SCHOOL
5 CLASSROOM ADDITION

ADDENDUM OR OTHER DOCUMENT SHALL IN NO WAY RELIEVE ANY BIDDER FROM ANY OBLIGATION WITH RESPECT TO HIS BID OR THE CONTRACT. THE SUBMISSION OF A BID SHALL BE TAKEN PRIMA FACIA EVIDENCE OF COMPLIANCE WITH THIS PARAGRAPH AND THAT HE HAS INCLUDED IN HIS PROPOSAL EVERY ITEM OF COST NECESSARY FOR A COMPLETE INSTALLATION OF PLUMBING, INSULATION, MECHANICAL AND PLUMBING CONNECTIONS TO KITCHEN EQUIPMENT, AIR CONDITIONING, HEATING AND VENTILATING, FIRE PROTECTION SYSTEMS OPERATING STRICTLY AS PLANNED AND SPECIFIED.

1.4 SUBDIVISIONS OF WORK:

- A. EACH SUBDIVISION OF WORK INCLUDES FURNISHING AND INSTALLING ALL MATERIALS TO MAKE THAT PART OF WORK COMPLETE, AND SHALL COMPRISE ALL AUXILIARIES, SETTING OF EQUIPMENT, SLEEVES THROUGH THE BUILDING CONSTRUCTION WHERE REQUIRED, ALL IN COMPLETE COORDINATION WITH GENERAL CONTRACTOR AND IN COOPERATION WITH OTHER TRADES. THE CONTRACTOR SHALL SUBMIT A LETTER TO THE GENERAL CONTRACTOR, STATING THAT HE HAS COORDINATED HIS WORK WITH THE OTHER DISCIPLINES FOR ALL UTILITY CONNECTIONS.

1.5 QUALITY OF MATERIALS AND EQUIPMENT:

- A. IT IS NOT THE INTENT OF THESE SPECIFICATIONS TO LIMIT MATERIAL AND/OR EQUIPMENT SELECTIONS TO ONE MANUFACTURER. THE ARCHITECT RESERVES THE RIGHT TO BE THE FINAL AND SOLE JUDGE WITH REGARD TO EQUALS ON ALL OTHER MATERIALS AND EQUIPMENT.
- B. APPROVAL OF EQUIPMENT SHALL BE BASED ON CAPACITIES, QUALITY OF WORKMANSHIP AND COMPONENTS, GENERAL AND SPECIAL CONSTRUCTION FEATURES. APPROVAL OF EQUIPMENT DOES NOT RELIEVE THE CONTRACTOR OF COORDINATION RESPONSIBILITY WITH OTHER TRADES OR SAFETY WITH THE INSTALLATION OF THE EQUIPMENT. EQUIPMENT SHALL FIT WITHIN THE PHYSICAL SPACE OF EQUIPMENT SHOWN AND HAVE THE SAME GENERAL CONNECTION AS THAT SHOWN ON THE DRAWINGS. PROPER CLEARANCES SHALL BE MAINTAINED FOR SERVICING AND MAINTAINING EQUIPMENT.
- C. WHERE EQUIPMENT SUBMITTED VARIES FROM THE GENERAL ARRANGEMENT OF THAT SPECIFIED, CONTRACTOR SHALL SUBMIT DETAILED SHEET-METAL AND PIPING SHOP DRAWINGS ALONG WITH EQUIPMENT BROCHURES. SHOP DRAWINGS SHALL INDICATE ANY AND ALL PIPING, SHEET-METAL, ELECTRICAL AND STRUCTURAL CHANGES REQUIRED TO FACILITATE CHANGE AND ANY AND ALL ADDITIONAL COSTS INCURRED BY CHANGES SHALL BE BORNE BY THIS CONTRACTOR.
- D. SERVICE SUPPORT: THE EQUIPMENT ITEMS SHALL BE SUPPORTED BY SERVICE ORGANIZATIONS. SUBMIT A CERTIFIED LIST OF QUALIFIED PERMANENT SERVICE ORGANIZATIONS FOR SUPPORT OF THE EQUIPMENT WHICH INCLUDES THEIR ADDRESSES AND QUALIFICATIONS. THESE SERVICE ORGANIZATIONS SHALL BE REASONABLY CONVENIENT TO THE EQUIPMENT INSTALLATION AND ABLE TO RENDER SATISFACTORY SERVICE TO THE EQUIPMENT ON A REGULAR AND EMERGENCY BASIS DURING THE WARRANTY PERIOD OF THE CONTRACT.

1.6 SHOP DRAWINGS

- A. REQUIREMENTS: IT WILL BE NECESSARY TO SUBMIT SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT FURNISHED FOR THIS PROJECT. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVAL ACQUIRED BEFORE ANY EQUIPMENT IS INSTALLED.
- B. WIRING DIAGRAMS: DETAILED WIRING DIAGRAMS SHALL BE SUBMITTED FOR ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTION OR INTERLOCK. WIRING DIAGRAMS SHALL BE COMPLETE IN ALL RESPECTS. ELECTRICAL CHARACTERISTICS SHALL BE VERIFIED FROM ELECTRICAL DRAWINGS.
- C. SUBMITTALS: AFTER APPROVAL OF SHOP DRAWINGS IS ACQUIRED, APPROVED SHOP DRAWINGS WILL BE RETURNED FOR CONTRACTOR'S USE AND DISTRIBUTION. SHOULD DRAWINGS FAIL TO MEET APPROVAL, ARCHITECT WILL INDICATE CHANGES DESIRED. CONTRACTOR SHALL CONTINUE TO SUBMIT CORRECTED SHOP DRAWINGS UNTIL FINAL APPROVAL IS OBTAINED. FINAL APPROVAL WILL NOT RELIEVE THE CONTRACTOR OF CAPACITY GUARANTEES, CORRECTLY FIGURED DIMENSIONS, SPACE REQUIREMENTS, OR DEVIATIONS FROM CONTRACT DOCUMENTS. ANY DEVIATIONS FROM SPECIFICATIONS AND DRAWINGS SHALL BE REQUESTED BY LETTER OUTLINING DEVIATION AND REASON THEREFORE AND MUST BE APPROVED BY ENDORSEMENT ON REQUEST LETTER.
- D. PARTIAL SUBMITTALS: THIS CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS AT ONE TIME. PARTIAL SUBMISSIONS WILL NOT BE ACCEPTABLE SINCE IT IS IMPRACTICABLE TO PROPERLY COORDINATE WORK FROM PARTIAL SUBMISSIONS.
- E. PROVIDE SHOP DRAWINGS WITH 1/4" SCALE PLANS AND ELEVATIONS FOR ALL SPLIT SYSTEM HEAT PUMPS, OUTSIDE AIR UNITS AND DUCTWORK. DRAWINGS SHALL INCLUDE EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- F. PRIOR APPROVAL: SHALL BE PROVIDED 1-WEEK PRIOR TO BID DATE.
- G. REQUESTS FOR SUBSTITUTION SHALL INCLUDE DIFFERENCES FROM THE BASIS OF DESIGN PRODUCT INCLUDING OPERATION, MATERIALS OF CONSTRUCTION, MATERIAL THICKNESS, WEIGHT, PERFORMANCE, AND COST. REQUEST SHALL INCLUDE REASON FOR SUBSTITUTION AND AFFECT ON OTHER WORK / TRADES.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. HANDLE, STORE, AND PROTECT EQUIPMENT AND MATERIALS TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND AS APPROVED BY THE ARCHITECT. REPLACE DAMAGED OR DEFECTIVE ITEMS.

1.8 SAFETY REQUIREMENTS

- A. EQUIPMENT SAFETY: PROVIDE POSITIVE MEANS OF LOCKING OUT EQUIPMENT SO THAT EQUIPMENT CANNOT BE ACCIDENTALLY STARTED DURING MAINTENANCE PROCEDURES. HIGH-TEMPERATURE EQUIPMENT AND PIPING SO LOCATED AS TO ENDANGER PERSONNEL OR CREATE A FIRE HAZARD SHALL BE PROPERLY GUARDED OR COVERED WITH INSULATION OF THE TYPE SPECIFIED. ENSURE THAT ACCESS OPENINGS LEADING TO EQUIPMENT ARE LARGE ENOUGH TO CARRY THROUGH ROUTINE MAINTENANCE ITEMS SUCH AS FILTERS AND TOOLS.

WEST NAVARRE INTERMEDIATE SCHOOL
5 CLASSROOM ADDITION

- B. WARNING SIGN: PROVIDE A PERMANENT PLACARD OR SIGN AT THE ENTRANCE TO CONFINED SPACES CONTAINED IN THE EQUIPMENT. THE SIGN SHALL WARN PERSONNEL NOT TO ENTER THE SPACE UNTIL THE ATMOSPHERE INSIDE HAS BEEN TESTED AND SYSTEMS HAVE BEEN DE-ENERGIZED.

1.9 ELECTRICAL REQUIREMENTS

- A. FURNISH MOTORS, CONTROLLERS, DISCONNECTS AND CONTACTORS WITH THEIR RESPECTIVE PIECES OF EQUIPMENT. MOTORS, CONTROLLERS, DISCONNECTS AND CONTACTORS SHALL CONFORM TO AND HAVE ELECTRICAL CONNECTIONS PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 16 "ELECTRICAL." FURNISH INTERNAL WIRING FOR COMPONENTS OF PACKAGED EQUIPMENT AS AN INTEGRAL PART OF THE EQUIPMENT. EXTENDED VOLTAGE RANGE MOTORS WILL NOT BE PERMITTED. CONTROLLERS AND CONTACTORS SHALL HAVE A MAXIMUM OF 120 VOLT CONTROL CIRCUITS, AND SHALL HAVE AUXILIARY CONTACTS FOR USE WITH THE CONTROLS FURNISHED. WHEN MOTORS AND EQUIPMENT FURNISHED ARE LARGER THAN SIZES INDICATED, THE COST OF ADDITIONAL ELECTRICAL SERVICE AND RELATED WORK SHALL BE INCLUDED UNDER THE SECTION THAT SPECIFIED THAT MOTOR OR EQUIPMENT. POWER WIRING AND CONDUIT FOR FIELD INSTALLED EQUIPMENT SHALL BE PROVIDED UNDER AND CONFORM TO THE REQUIREMENTS OF DIVISION 16 "ELECTRICAL."
- 1. HIGH EFFICIENCY SINGLE-PHASE MOTORS: UNLESS OTHERWISE SPECIFIED, SINGLE-PHASE FRACTIONAL-HORSEPOWER ALTERNATING-CURRENT MOTORS SHALL BE HIGH EFFICIENCY TYPES CORRESPONDING TO THE APPLICATIONS LISTED IN NATIONAL ELECTRICAL MANUFACTURERS AND MATERIALS ASSOCIATION MG 11.
- 2. HIGH EFFICIENCY POLYPHASE MOTORS: UNLESS OTHERWISE SPECIFIED, POLYPHASE MOTORS SHALL BE SELECTED BASED ON HIGH EFFICIENCY CHARACTERISTICS RELATIVE TO THE APPLICATIONS AS LISTED IN NATIONAL ELECTRICAL MANUFACTURERS AND MATERIALS ASSOCIATION MG 10. ADDITIONALLY, POLYPHASE SQUIRREL-CAGE MEDIUM INDUCTION MOTORS WITH CONTINUOUS RATINGS SHALL MEET OR EXCEED ENERGY EFFICIENT RATINGS IN ACCORDANCE WITH TABLE 12-6C OF NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION MG 1.

1.10 GUARANTEE

- A. THE CONTRACTOR SHALL GUARANTEE, IN WRITING, THE ENTIRE PLUMBING, FIRE PROTECTION AND AIR CONDITIONING SYSTEMS WHEN COMPLETED SHALL BE FREE FROM ANY AND ALL DEFECTS AND SHALL GUARANTEE THE ENTIRE SYSTEM, EQUIPMENT, CONTROLS AND OTHER EQUIPMENT FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF ACCEPTANCE BY THE OWNER. DURING THE GUARANTEE PERIOD, ANY DEFECTED PART OR PARTS SHALL BE PROMPTLY REPAIRED OR REPLACED WITH NEW PARTS BY AND AT THE EXPENSE OF THE CONTRACTOR. UPON RECEIPT OF NOTICE FROM THE ARCHITECT OR OWNER OF THE FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHALL BE PROMPTLY REPAIRED OR REPLACED WITH NEW PARTS BY AND AT THE EXPENSE OF THE CONTRACTOR.

1.11 AS-BUILTS

- A. THE CONTRACTOR SHALL MAINTAIN RECORDS DURING THE COURSE OF THE PROJECT AND SHALL COMPILE THESE RECORDS TO PRODUCE A SET OF REPRODUCIBLE PLANS. THIS SET OF RECORDED DOCUMENTS SHALL SHOW THE SIGNIFICANT CHANGES MADE DURING THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTING ALL MARKED UP PRINTS AND FURNISHING THE AS-BUILT DRAWINGS. THE REPRODUCIBLE DRAWINGS SHALL BE TURNED OVER TO THE OWNERS REPRESENTATIVE WITHIN 45 DAYS AFTER COMPLETION.

1.12 INSTRUCTION TO OWNER PERSONNEL

- A. FURNISH THE SERVICES OF COMPETENT INSTRUCTORS TO GIVE FULL INSTRUCTION TO THE DESIGNATED OWNER PERSONNEL IN THE ADJUSTMENT, OPERATION, AND MAINTENANCE, INCLUDING PERTINENT SAFETY REQUIREMENTS, OF THE SPECIFIED EQUIPMENT OR SYSTEM. INSTRUCTORS SHALL BE THOROUGHLY FAMILIAR WITH ALL PARTS OF THE INSTALLATION AND SHALL BE TRAINED IN OPERATING THEORY AS WELL AS PRACTICAL OPERATION AND MAINTENANCE WORK. INSTRUCTION SHALL BE GIVEN DURING THE FIRST REGULAR WORK WEEK AFTER THE EQUIPMENT OR SYSTEM HAS BEEN ACCEPTED AND TURNED OVER TO THE OWNER FOR REGULAR OPERATION.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 QUALITY CONTROL:

- A. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS MANNER.
- B. INSTALL ALL EQUIPMENT SUCH THAT ACCESS DOORS ARE ACCESSIBLE.
- C. MAINTAIN CLEARANCE FOR ALL VALVES, DAMPERS AND FILTER REPLACEMENT.
- D. PROTECT ALL EQUIPMENT AND FIXTURES DURING CONSTRUCTION. REPLACE DAMAGED EQUIPMENT OR FIXTURES. TOUCH UP FACTORY FINISHES ON EQUIPMENT WITH FACTORY COLOR MATCHED PAINT. PRIME AS REQUIRED TO ENSURE NO CORROSION.
- E. DO NOT CUT OR DRILL INTO STRUCTURAL MEMBERS WITHOUT WRITTEN APPROVAL.
- F. OPERATE HVAC SYSTEMS AFTER START UP TO PREVENT DAMAGE TO BUILDING CEILINGS AND CARPETS.
- G. DO NOT CUT OR DRILL INTO STRUCTURAL MEMBERS WITHOUT WRITTEN APPROVAL.

3.2 INTERRUPTION OF SERVICES:

- A. SHUT DOWN OF EQUIPMENT SHALL BE LIMITED TO NIGHTS AND WEEKENDS UNLESS OTHERWISE COORDINATED WITH THE ENGINEER AND OWNER.

WEST NAVARRE INTERMEDIATE SCHOOL
5 CLASSROOM ADDITION

3.3 3.03 OPERATION AND MAINTENANCE MANUALS:

- A. FURNISH 4 COMPLETE BOUND COPIES OF THE MANUAL CONTAINING THE FOLLOWING:
OPERATING INSTRUCTIONS, WIRING/CONTROL DIAGRAMS, MAINTENANCE
INSTRUCTIONS, SERVICE INSTRUCTIONS, PARTS LISTS AND WARRANTIES.

END OF SECTION 15005