MATERIAL SPECIFICATIONS

I - PRODUCTS

GENERAL:

ALL MATERIALS, APPLIANCES AND EQUIPMENT EXCEPT THAT FURNISHED BY THE OWNER SHALL BE NEW, BEAR U.L. LABEL AND OF THE MAKE, BRAND OR QUALITY SPECIFIED OR AS ACCEPTED BY THE ARCHITECT AS HEREIN PROVIDED. THIS SHALL ALSO APPLY TO ALL PARTS OF THE WORK WHETHER OR NOT THIS PARTICULAR PARAGRAPH IS REFERRED TO BY NUMBER.

ALL APPARATUS, CONDUIT SYSTEMS, ETC., SHALL BE INSTALLED AND INTERCONNECTED SO AS TO FORM COMPLETE SYSTEMS AS HEREIN SPECIFIED AND/OR SHOWN ON ALL THE ACCOMPANYING DRAWINGS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK NECESSARY TO MAKE COMPLETE WORKING SYSTEMS, EXCEPTING ONLY THOSE PORTIONS THAT ARE SPECIFICALLY MENTIONED HEREIN OR PLAINLY MARKED ON ACCOMPANYING DRAWINGS AS BEING FURNISHED BY OTHER CONTRACTORS.

RACEWAYS AND FITTINGS:

RACEWAY:

SHALL BE AS MANUFACTURED BY TRIANGLE CONDUIT AND CABLE COMPANY, ALLIED TUBE AND CONDUIT CORPORATION, AMERICAN FLEXIBLE CONDUIT COMPANY, CAROL CABLE COMPANY, INC., WHEATLAND TUBE COMPANY, CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

GALVANIZED RIGID STEEL CONDUITS (RSC) - MAY BE USED IN ALL LOCATIONS. FOR UNDERGROUND RUNS IN DIRECT CONTACT WITH EARTH, CONDUIT SHALL BE FACTORY WRAPPED WITH PVC TAPE OR SHALL HAVE FACTORY APPLIED PVC COATING.

GALVANIZED INTERMEDIATE METALLIC CONDUIT (IMC) - MAY BE USED IN INDOOR LOCATIONS NOT IN DIRECT CONTACT WITH EARTH.

GALVANIZED ELECTRICAL METALLIC TUBING (EMT) - MAY BE USED IN INDOOR DRY LOCATIONS IN WHICH IT IS:

NOT SUBJECT TO PHYSICAL DAMAGE.
NOT IN DIRECT CONTACT WITH EARTH.
NOT IN CONCRETE SLABS.
NOT IN HAZARDOUS AREAS.
ON ROOF OR WALK COVER WHEN SPECIFICALLY SHOWN ON DRAWINGS.

NON-METALLIC RIGID CONDUIT SHALL BE PVC SCHEDULE 40 AND MAY BE USED FOR:

UNDERGROUND.
BELOW CONCRETE SLAB ON GRADE.
IN CONCRETE SLAB ON FLOORS ABOVE GRADE.
IN MASONRY WALLS, NOT IN SAME MASONRY CELLS AS THE BUILDING STRUCTURAL REINFORCEMENT STEEL.

FLEXIBLE STEEL CONDUIT MAY BE USED IN DRY LOCATIONS TO FACILITATE WIRING IN TIGHT LOCATIONS, WHEN APPROVED BY ENGINEER. FLEXIBLE ALUMINUM CONDUIT MAY BE USED IN WALLS OR IN ATTICS TO FACILITATE WIRING IN TIGHT LOCATIONS, WHEN APPROVED BY THE ENGINEER.

LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE USED IN OUTDOOR OR WET LOCATIONS FOR FINAL CONNECTIONS.

FITTINGS:

SHALL BE THREADED TYPE ONLY FOR RIGID AND INTERMEDIATE STEEL CONDUITS.

FOR ELECTRICAL METALLIC TUBING (EMT), FITTINGS SHALL BE:

SET-SCREW WITH STEEL HOUSING OR COMPRESSION TYPE FOR SIZES 1/2" THROUGH 1", IN DRY LOCATIONS.
COMPRESSION TYPE FOR SIZES LARGER THAN 1" OR IN WET LOCATIONS.

FOR NON-METALLIC CONDUITS AND TUBINGS:

FITTINGS SHALL BE PVC TYPE. USE PVC ADAPTERS AT ALL BOXES AND PANEL BOARDS. BRUSH APPLY PVC CEMENT.
ALL PVC COMPONENTS, (CONDUITS, FITTINGS, CEMENT) SHALL BE OF SAME MANUFACTURER.

FLEXIBLE METALLIC CONDUITS: COMPRESSION TYPE.

LIQUID-TIGHT FLEXIBLE METALLIC CONDUITS: LIQUID-TIGHT, COMPRESSION TYPE.

USE OF THE FOLLOWING IS PROHIBITED:

CRIMP-ON, TAP-ON, INDENTER TYPE FITTINGS.
SPRAY (AEROSOL) PVC CEMENT.
ENT CONDUIT AND FITTINGS.

PULL BOXES:

PULL BOXES SHALL MEET ALL CODE REQUIREMENTS AS TO SIZE FOR CONDUITS TERMINATING THEREIN AND TO THICKNESS OF MATERIAL USED IN FABRICATION.

FABRICATED SHEET STEEL PULL BOXES SHALL BE INSTALLED ONLY IN DRY, PROTECTED LOCATIONS AND SHALL BE FURNISHED WITH KNOCKOUTS AND REMOVABLE SCREW COVER. BOX SHALL BE FINISHED WITH ONE COAT OF ZINC CHROMATE AND A COAT OF PRIMER SEALER AND WHERE EXPOSED TO PUBLIC VIEW SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE.

WEATHERPROOF SHEET STEEL PULL BOXES SHALL BE FABRICATED OF CODE GAUGE GALVANIZED SHEET STEEL WITH TWO COATS OF RUST RESISTANT FINISH AND SHALL BE FURNISHED WITH GASKET AND MADE COMPLETELY WEATHERTIGHT.

APPROVED MANUFACTURERS FOR METAL BOXES ARE CIRCLE AW, CROUSE HINDS, RACO INDUSTRIES, STEEL CITY OR EQUAL.

WEATHERPROOF UNDERGROUND CONCRETE PULL BOXES, JUNCTION BOXES AND TELEPHONE BOXES SHALL BE MANUFACTURED BY CHRISTY CONCRETE PRODUCTS, QUIKSET ASSOCIATED CONCRETE PRODUCTS, QUAZITE, SYNERTECH UNDERGROUND PRODUCTS OR EQUAL. ALL BOXES SHALL HAVE LIDS MARKED "POWER", "SIGNAL", "FIBER OPTIC", "DANGER - HIGH VOLTAGE", ETC., AND BE TRAFFIC RATED PER CALTRANS DRAWING ES-8 MINIMUM WHERE PULL BOX OCCURS IN VEHICULAR TRAFFIC AREAS.

OUTLETS:

ALL OUTLET BOXES SHALL BE STANDARD ONE OR TWO PIECE GALVANIZED KNOCK-OUT OUTLET BOXES, NATIONAL, STEEL CITY, APPLETON, BOWERS OR APPROVED EQUAL.

ALL OUTLET BOX COVERS, RINGS OR OTHER FITTINGS SHALL BE STANDARD GALVANIZED, NATIONAL, STEEL CITY, APPLETON, BOWERS OR APPROVED EQUAL.

NO OUTLET BOX SHALL BE SMALLER THAN FOUR INCHES (4") SQUARE AND 1 1/2" IN DEPTH, EXCEPT IN CONCRETE BLOCK CONSTRUCTION WHERE BOWERS CONCRETE BLOCK BOXES ARE APPROVED.

ALL SPECIAL OUTLETS SHALL BE AS HEREINAFTER SPECIFIED OR AS SHOWN ON DRAWINGS.

ANY UNUSED BOXES SHALL BE EQUIPPED WITH A COVER PLATE.

PANEL BOARDS

THE PANEL BOARDS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SET UP BY THE UNDERWRITERS' LABORATORIES, INC., AND AS MANUFACTURED BY SQUARE "D" COMPANY OR APPROVED EQUAL, AND EACH SHALL CONTAIN THE NUMBER AND TYPE OF CIRCUIT BREAKERS AS INDICATED ON THE DRAWINGS.

WHEN SHOWN ON THE DRAWINGS, PANEL BOARDS SHALL BE PROVIDED WITH AN INTEGRAL MAIN CIRCUIT BREAKER COMPLYING WITH OVERCURRENT DEVICE SECTION OF THIS SPECIFICATION, SIZED AS INDICATED ON THE DRAWINGS.

THE PANEL BOARDS SHALL BE EQUIPPED WITH BRANCH DISTRIBUTION CIRCUIT BREAKERS PER THE OVERCURRENT SECTION OF THIS SPECIFICATION.

THE PANEL BOARDS SHALL BE EQUIPPED WITH HINGED DOORS, FLAT FRONT, TYPEWRITTEN CIRCUIT DIRECTORIES. IN EXTERIOR LOCATIONS, PROVIDE A NEMA 3R RATED ENCLOSURE, FINISH SHALL BE STANDARD FACTORY GRAY HAMMERTONE. PROVIDE LOCK ON ALL PANELS. KEY AS DIRECTED BY ARCHITECT.

SEVEN COPIES OF DETAILED CONSTRUCTION DRAWINGS FOR THE PANEL BOARDS AND TERMINAL CABINETS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL BEFORE THEIR CONSTRUCTION IS STARTED.

OVERCURRENT DEVICES:

MAIN PROTECTIVE DEVICE SHALL BE CIRCUIT BREAKER WITH INTERRUPTING RATING, FRAME AND TRIP RATINGS AS SHOWN ON THE DRAWINGS.

FEEDER PROTECTIVE DEVICES AS SHOWN SHALL BE MOLDED CASE CIRCUIT BREAKERS PROVIDING COMPLETE CIRCUIT OVERCURRENT PROTECTION BY HAVING INVERSE TIME AND INSTANTANEOUS TRIPPING CHARACTERISTICS, AND WHERE APPLICABLE, BE CURRENT LIMITING.

CIRCUIT BREAKERS SHALL BE OPERATED BY A TOGGLE-TYPE HANDLE AND SHALL HAVE A QUICK-MADE, QUICK-BREAK OVER-CENTER SWITCHING MECHANISM THAT IS MECHANICALLY TRIP FREE. AUTOMATIC TRIPPING OF THE BREAKER SHALL BE CLEARLY INDICATED BY HANDLE POSITION. CONTACTS SHALL BE NON-WELDING SILVER ALLOY AND ARC EXTINCTION SHALL BE ACCOMPLISHED BY MEANS OF DE-ION ARC CHUTES.

CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL BE AS INDICATED ON THE DRAWINGS OR AS SPECIFIED HEREINAFTER. WHERE APPLICABLE, CIRCUIT BREAKERS SHALL BE LISTED FOR SERIES APPLICATION.

ALL CIRCUIT BREAKERS IN MAIN SWITCHBOARD SHALL HAVE SHORT CIRCUIT CURRENT INTERRUPTING CAPACITY EXCEEDING THE MAXIMUM AVAILABLE AT SERVICE TRANSFORMER. CONTRACTOR SHALL VERIFY AND DOCUMENT EXACT REQUIREMENTS.

STANDARD TWO AND THREE POLE CIRCUIT BREAKERS SHALL BE UL LISTED AS HACR TYPE BREAKERS FOR USE WITH HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT.

ALL CIRCUIT BREAKERS LOCATED IN SEPARATE ENCLOSURES, WHETHER NEMA 1 OR NEMA 3R RATED, SHALL INCLUDE A HANDLE PADLOCK ATTACHMENT.

ALL CIRCUIT BREAKERS, 100 AMPS OR MORE, SHALL BE TESTED BY AN INDEPENDENT TESTING FIRM IN ACCORDANCE WITH NETA SPECIFICATIONS AND A REPORT SUBMITTED TO THE ARCHITECT. THE CONTRACTOR SHALL PAY FOR THE COST OF THIS REQUIREMENT. ANY CIRCUIT BREAKER THAT DOES NOT PASS THE TEST SHALL BE REPLACED.

CONDUCTORS:

ALL WIRE INSTALLED IN THIS CONTRACT SHALL BE OF A STANDARD MANUFACTURER AS APPROVED BY THE NATIONAL BOARD OF FIRE UNDERWRITERS AND BE OF THE SIZE AS INDICATED ON THE DRAWINGS. ALL WIRE SHALL BEAR THE UNDERWRITERS'S LABEL AND SHALL BE BROUGHT TO THE JOB IN UNBROKEN PACKAGES AND APPROVED BY THE JOB INSPECTOR BEFORE SAME IS INSTALLED.

ALL CONDUCTORS SHALL BE TYPE COPPER WITH THWN INSULATION UNLESS OTHERWISE NOTED.

CABLING

'A' CABLE SHALL BE TWISTED PAIR, ONE SHIELDED, TWO UNSHIELDED, SOLID DRAIN AND COPPER CONDUCTOR, 22 AWG, LOW CAPACITANCE, WEST PENN #AQC373 OR APPROVED EQUAL.

II - EXECUTION

CONDUIT SYSTEMS:

A CONCEALED CONDUIT SYSTEM SHALL BE INSTALLED FOR ALL INTERIOR WIRING. CONDUIT SHALL BE RUN CONTINUOUS BETWEEN OUTLETS, ETC., AND WITH THE MINIMUM NUMBER OF BENDS.

PVC 40 OR RIGID STEEL FACTORY WRAPPED WITH PVC TAPE SHALL BE USED FOR UNDERGROUND RUNS.

WHERE UNDERGROUND CONDUIT CANNOT BE RUN BELOW BUILDING FOOTINGS THE CONTRACTOR SHALL PROVIDE PVC-80 SLEEVES THROUGH THE FOOTINGS (CONTRACTOR SHALL OBTAIN APPROVAL FOR ALL SLEEVE SIZES AND LOCATIONS WITH THE STRUCTURAL ENGINEER BEFORE INSTALLATION).

ALL CONDUIT RISERS THROUGH SLAB SHALL BE RIGID STEEL OR IMC (FACTORY WRAPPED WITH PVC TAPE OR WITH FACTORY APPLIED PVC COATING) AND SHALL EXTEND A MINIMUM OF FOUR INCHES (4") ABOVE FINISHED FLOOR.

ALL CONDUIT SHALL BE DELIVERED TO THE SITE OF CONSTRUCTION IN THEIR ORIGINAL BUNDLES. EACH LENGTH OF CONDUIT SHALL BEAR THE LABEL OF THE NATIONAL BOARD OF FIRE UNDERWRITERS. ALL CONDUIT SUBJECTED TO ROUGH USAGE WHILE ON THE JOB BEFORE INSTALLATION AND NOT ACCEPTABLE TO THE ARCHITECT SHALL BE REMOVED FROM THE PREMISES UPON NOTICE.

THE JOINTS IN ALL CONDUITS INSTALLED UNDER CONCRETE SLABS ON THE GROUND, OR UNDERGROUND, OR EXPOSED TO THE WEATHER, SHALL BE MADE LIQUID AND GAS-TIGHT. ALL UNDERGROUND CONDUIT OUTSIDE OF THE BUILDINGS SHALL BE BURIED TO A DEPTH OF NOT LESS THAN 24" BELOW FINISH GRADE. UTILITY SERVICES SHALL COMPLY WITH UTILITY COMPANY REQUIREMENTS. TWO OR MORE POWER OR TELECOMMUNICATIONS CONDUIT RUNS INSTALLED IN A COMMON TRENCH SHALL BE SEPARATED HORIZONTALLY BY AT LEAST FOUR INCHES (4"). TWO OR MORE POWER AND TELECOMMUNICATIONS CONDUIT RUNS INSTALLED IN A COMMON TRENCH SHALL BE SEPARATED HORIZONTALLY BY AT LEAST TWELVE (12"). ELECTRICAL CONDUIT RUNS INSTALLED IN A COMMON TRENCH WITH OTHER UTILITY LINES SHALL BE SEPARATED HORIZONTALLY FROM SUCH LINES BY AT LEAST TWELVE INCHES (12").

ALL CONDUITS WHERE THEY ENTER PANEL BOXES, PULL BOXES, OR OUTLET BOXES SHALL BE SECURED IN PLACE BY GALVANIZED LOCKNUTS - ONE (1) LOCKNUT INSIDE OF BOX. AN INSULATED THROAT SHALL BE USED WHERE CONDUCTORS ARE #4 OR LARGER.

WHERE CONDUITS ARE RUN EXPOSED, THE SAME SHALL BE INSTALLED STRAIGHT AND TRUE WITH REFERENCE TO THE ADJACENT CONSTRUCTION.

CONDUIT 1" AND ABOVE SHALL HAVE INSULATED THROAT BUSHINGS.

ALL EMPTY CONDUIT SHALL BE EQUIPPED WITH A #12 GALVANIZED IRON PULL WIRE OR NYLON PULL ROPE CONTINUOUS FROM OUTLET TO OUTLET.

FLEXIBLE CONNECTIONS IN OUTDOOR AND DAMP LOCATIONS SHALL BE FLEXIBLE LIQUID-TIGHT METAL CONDUIT OR NON-CORROSIVE SEAMLESS METALLIC TUBING WITH WATER-TIGHT CONNECTIONS.

INSTALL ROOF JACKS FOR THIS CONSTRUCTION IN ACCORDANCE WITH OTHER SECTIONS OF THE PROJECT SPECIFICATIONS.

THE MAXIMUM ALLOWED LENGTH OF FLEX CONDUIT AT EQUIPMENT CONNECTIONS IS 18".

EXPANSION JOINTS FOR CONDUIT SHALL BE PROVIDED WHERE REQUIRED TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.

NO CONDUIT SMALLER THAN 1/2 INCH ELECTRICAL TRADE SIZE SHALL BE USED.

SUPPORT CONDUITS ON ROOF ON 2" X 4" REDWOOD BLOCKS SPACED 5 FT. APART AND SET IN MASTIC.

GUARANTEE AND TESTS:

ALL ELECTRICAL EQUIPMENT TESTING AND RELATED COSTS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

EQUIPMENT OF ALL KINDS INSTALLED BY THE CONTRACTOR SHALL BE TESTED TO DETERMINE WHETHER IT FULFILLS THE REQUIREMENTS OF THESE SPECIFICATIONS. THE CONTRACTOR SHALL FURNISH ALL LABOR NECESSARY TO ADJUST THE OPERATION OF THE APPARATUS AND MADE THE CONNECTIONS FOR THE TESTS. AFTER THE TESTS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL RESTORE ALL CONNECTIONS, APPARATUS, ETC., TO THEIR ORIGINAL CONDITION.

ALL CIRCUIT BREAKERS, 100 AMPS OR MORE, SHALL BE TESTED BY AN INDEPENDENT TESTING FIRM IN ACCORDANCE WITH NETA SPECIFICATIONS AND A REPORT SUBMITTED TO THE ARCHITECT. ANY CIRCUIT BREAKER THAT DOES NOT PASS THE TEST SHALL BE REPLACED.

THE ENTIRE INSTALLATION SHALL BE FREE FROM SHORT CIRCUITS AND IMPROPER GROUNDS. PANELS AND ASSOCIATED CIRCUITS INSTALLED AS PART OF THIS PROJECT SHALL BE TESTED FOR GROUNDS AND SHORTS WITH MAINS DISCONNECTED FROM THE FEEDER, BRANCHES CONNECTED, LAMPS REMOVED OR OMITTED FROM THE SOCKETS AND ALL WALL SWITCHES CLOSED. EACH INDIVIDUAL CIRCUIT SHALL BE TESTED AT THE PANEL WITH THE EQUIPMENT CONNECTED FOR PROPER OPERATION. GROUND TESTS SHALL MEET THE REQUIREMENTS OF THE CALIFORNIA ELECTRICAL CODE. UPON COMPLETION OF THE WORK, A FINAL INSPECTION OF THE ARCHITECT AND OTHER INTERESTED AUTHORITIES SHALL BE CONDUCTED. THE CONTRACTOR SHALL GUARANTEE TO REPAIR OR REPLACE AT HIS EXPENSE ANY MATERIAL OR EQUIPMENT THAT DEVELOPS DEFECTS OR IS DETERMINED NOT TO BE IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS, DURING A PERIOD OF ONE YEAR AFTER WORK IS ACCEPTED BY THE OWNER.

SHOULD ANY PIECE OF APPARATUS OR ANY MATERIAL OR WORK FAIL IN ANY OF THESE TESTS, IT SHALL BE IMMEDIATELY REMOVED AND BE REPLACED WITH NEW MATERIAL BY THE CONTRACTOR AT HIS EXPENSE AND THE PORTION OF THE WORK REPLACED BE AGAIN TESTED BY THE CONTRACTOR.

THE INDEPENDENT TESTING AGENCY PERFORMING THE ABOVE MENTIONED TESTS SHALL BE NETA OR NICET CERTIFIED. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ARCHITECT OF THE PROPOSED INDEPENDENT TESTING FIRM(S) BEFORE ANY TESTING IS STARTED.

DEMOLITION:

REMOVE AND/OR RELOCATE ELECTRICAL FACILITIES AS REQUIRED TO CLEAR AREAS FOR NEW CONSTRUCTION.

LOCATIONS:

THE WORK AS LAID OUT IS TO SOME EXTENT DIAGRAMMATIC, AND THE LOCATION THEREON INDICATED MAY BE APPROXIMATE ONLY. THE CONTRACTOR, THEREFORE, SHALL INSTALL ALL THE EQUIPMENT, APPARATUS, CONDUIT RUNS AND THE LIKE AS FOLLOWS:

ADHERE TO THE LOCATION INDICATED AS FAR AS POSSIBLE.

MAINTAIN AMPLE HEAD ROOM IN ALL ROOMS AND PASSAGEWAYS, CLEARANCE AROUND ALL APPARATUS AND EQUIPMENT AND UNDER PIPE LINES FOR UNRESTRICTED PASSAGE AND FOR EASY SERVICING OF ALL APPARATUS, EQUIPMENT, DEVICES AND THE LIKE.

VERIFY THE EXACT LOCATIONS OF ALL APPARATUS OR DEVICES AS INDICATED ON THE DRAWINGS. IN THE EVENT THESE DRAWINGS DO NOT SUFFICIENTLY INDICATE THE LOCATIONS FOR ALL SUCH APPARATUS OR DEVICES, THE CONTRACTOR SHALL OBTAIN THE EXACT LOCATIONS FROM THE ARCHITECT.

VERIFICATION OF DIMENSIONS:

THE CONTRACTOR SHALL, AS WORK PROGRESSES, VERIFY THE DIMENSIONS OF THE SPACES AVAILABLE FOR THE INSTALLATION OF THE WORK AND HE SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATIONS AND GRADING OF EACH PORTION THEREOF.

WHERE THE WORK REQUIRES CONNECTIONS TO BE MADE TO EQUIPMENT THAT IS FURNISHED AND SET IN PLACE BY OTHERS, THE CONTRACTOR SHALL OBTAIN EXACT ROUGH-IN DIMENSIONS FROM THE MANUFACTURER OF SUCH EQUIPMENT AND HE SHALL INSTALL THE CONNECTIONS IN A NEAT AND WORKMANLIKE MANNER.

PRELIMINARY OPERATION:

SHOULD THE OWNER REQUIRE THROUGH THE ARCHITECT THAT ANY PORTION OF THE SYSTEMS OR EQUIPMENT HEREIN SPECIFIED BE OPERATED PRIOR TO THE FINAL COMPLETION AND ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL CONSENT. SUCH OPERATION SHALL BE UNDER THE SUPERVISION AND DIRECTION OF THE CONTRACTOR, BUT ALL EXPENSES THEREFORE SHALL BE PAID BY THE OWNER, SEPARATE AND DISTINCT FROM ANY MONEY PAID ON ACCOUNT THEREFORE OF THE CONTRACT.

SUCH PRELIMINARY OPERATION, OR PAYMENT THEREFOR, SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF ANY OF THE WORK UNDER THE CONTRACT. THE ARCHITECT SHALL APPROVE ANY EXPENSE INCURRED BY THE CONTRACTOR BEFORE PAYMENT BY THE OWNER.

ACCESS OPENINGS:

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SUFFICIENT AND CONVENIENT ACCESS OPENINGS, PANELS, ETC., IN THE BUILDING CONSTRUCTION WHERE REQUIRED FOR THE MAINTENANCE OF, INSTALLATION AND/OR REMOVAL OF ALL ELECTRICAL EQUIPMENT, OR OTHER ITEMS OF THE VARIOUS SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING:

THE CONTRACTOR SHALL DO ALL CUTTING AND PATCHING OF THE WORK FOR THE INSTALLATION OF THE EQUIPMENT AND MATERIALS AS APPROVED BY THE ARCHITECT AND/OR ENGINEER. ALL PATCHING SHALL ACCURATELY MATCH THE ADJOINING WORK.

FOUNDATIONS AND SUPPORTS:

THE CONTRACTOR SHALL PROVIDE ALL FOUNDATIONS, SUPPORTS AND HANGERS, ETC., AS REQUIRED TO INSTALL THE EQUIPMENT AS SPECIFIED OR SHOWN ON THE DRAWINGS. ALL EQUIPMENT SHALL BE SUPPORTED, BRACED AND CROSS-BRACED IN SUCH MANNER AS TO PREVENT SWAY AND/OR LATERAL MOVEMENT.

EXCAVATION AND BACKFILLING:

EXCAVATING REQUIRED FOR THE INSTALLATION OF THE WORK SHALL BE DONE BY THIS CONTRACTOR. UNDERGROUND LINES OUTSIDE THE BUILDINGS SHALL BE INSTALLED WITH A MINIMUM COVER OF 24", EXCEPT DEPTH OF UTILITY SERVICES SHALL COMPLY WITH RESPECTIVE UTILITY COMPANY REQUIREMENTS.

BACKFILL:

6" BELOW, AROUND, AND TO 6" ABOVE CONDUIT: MATERIAL SHALL BE SAND. PLACE CAREFULLY AROUND AND ON TOP OF PIPE, TAKING CARE NOT TO DISTURB CONDUIT. CONSOLIDATE WITH VIBRATOR.

6" ABOVE CONDUIT TO GRADE: MATERIAL SHALL BE SANDY OR SILTY LOAM, FREE OF LUMPS, LAID IN 6" LAYERS, UNIFORMLY MIXED TO PROPER MOISTURE AND COMPACTED TO REQUIRED DENSITY. IF BACKFILL IS DETERMINED TO BE SUITABLE AND REQUIRED COMPACTION IS DEMONSTRATED BY LABORATORY TEST, WATER COMPACTION IN 6" LAYERS MAY BE USED, SUBJECT TO REVIEW BY ENGINEER.

COMPACTION:

COMPACT TO DENSITY OF 95% WITHIN BUILDING AND UNDER WALKWAYS, DRIVEWAYS, TRAFFIC AREAS, PAVED AREAS, ETC. AND TO 90% ELSEWHERE. DEMONSTRATE PROPER COMPACTION BY TESTING AT TOP, BOTTOM AND ONE-HALF OF THE TRENCH DEPTH. PERFORM THESE TESTS AT THREE LOCATIONS PER 100' OF TRENCH.

NO EXCAVATION BELOW THE LEVEL OF, OR ADJACENT TO, FOUNDATIONS OF FOOTINGS SHALL BE MADE EXCEPT IN A MANNER APPROVED BY THE ARCHITECT.

A DETECTABLE TRACER TAPE (RED OR YELLOW FOR POWER CONDUITS, ORANGE FOR TELECOMMUNICATIONS AND CATV CONDUITS) STATING "CAUTION ELECTRIC LINE BURIED BELOW" SHALL BE INSTALLED 12" ABOVE CONDUIT, FULL LENGTH OF DITCH.

ELECTRICAL CONDUIT SHALL NOT BE RUN IN EXCAVATIONS PROVIDED FOR PLUMBING OR HEATING PIPES, UNLESS SEPARATED BY A MINIMUM OF 12 INCHES.

VERIFY LOCATION OF ALL UNDERGROUND LINES WITH OWNER AND UTILITY COMPANIES BEFORE STARTING EXCAVATION.

TEN (10) DAYS BEFORE DOING ANY EXCAVATION OR TRENCHING CONTACT "UNDERGROUND ALERT SERVICE," 1-800-642-2444, ADVISE THEM OF WORK SCHEDULE AND COMPLY WITH THEIR RECOMMENDATIONS.

CLEANING UP:

THE CONTRACTOR SHALL KEEP THE PREMISES FREE FROM ACCUMULATIONS OF HIS WASTE MATERIAL OR RUBBISH. AT THE COMPLETION OF THE WORK, HE SHALL REMOVE ALL HIS RUBBISH, TOOLS, SCAFFOLDING AND SURPLUS MATERIALS FROM AND ABOUT THE BUILDINGS, LEAVING THE PREMISES IN A CLEAN CONDITION.

ALL EXTERIOR SURFACES OF EXPOSED EQUIPMENT AND MATERIAL SHALL BE THOROUGHLY CLEANED OF ALL DIRT, CEMENT, PLASTER AND OTHER DEBRIS, INCLUDING THE EXTERIOR SURFACES OF ALL CONDUIT, CONDUIT FITTINGS, CONDUIT HANGER, INSULATION AND THE LIKE.

ALL SURFACES TO BE PAINTED SHALL BE CAREFULLY WIPED OR OTHERWISE CLEANED, CRACKS AND CORNERS SCRAPED OUT CLEAN, GREASE AND OIL SPOTS REMOVED SO THAT SURFACES MAY RECEIVE PAINT WITHOUT FURTHER PREPARATION.

ALL FIXTURES AND PLATED MATERIALS SHALL BE THOROUGHLY CLEANED AND POLISHED.

DAMAGE BY LEAKS:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ANY PART OF THE PREMISES, CAUSED BY BREAKS IN CONDUIT OR FIXTURES FURNISHED AND/OR INSTALLED BY HIM UNDER THIS SPECIFICATION FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE OF THE PROJECT BY THE OWNER.

SITE CONDITIONS:

WHERE EXISTING UTILITIES ARE SHOWN ON THE PLANS, EXTREME CARE SHALL BE EXERCISED IN EXCAVATING NEAR THESE UTILITIES TO AVOID ANY DAMAGE THERETO, AND THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY SUCH DAMAGE CAUSED BY THIS OPERATION.

THE GENERAL LOCATION AND ARRANGEMENT OF CONDUIT, EQUIPMENT APPARATUS, ETC., AS SHOWN IN THE DRAWINGS OR HEREIN SPECIFIED AND ALL INSTALLATIONS SHALL BE MADE IN ACCORDANCE THEREWITH. INFORMATION ON THE DRAWINGS RELATIVE TO EXISTING SERVICES IS APPROXIMATE ONLY. MINOR DEVIATIONS REQUIRED TO CONFORM TO ACTUAL LOCATIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO OWNER.

SHOULD UTILITIES NOT SHOWN ON THE PLANS BE FOUND DURING EXCAVATIONS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT FOR INSTRUCTIONS AS TO FURTHER ACTION. FAILURE TO DO SO WILL MAKE THE CONTRACTOR LIABLE FOR ANY DAMAGE THERE ARISING FROM HIS OPERATIONS AFTER DISCOVERY OF SUCH UTILITIES NOT SHOWN ON THE PLANS. THESE UTILITIES SHALL BE REMOVED OR RELOCATED AS DIRECTED BY THE ARCHITECT. AN EQUITABLE ADJUSTMENT IN THE CONTRACT WILL BE MADE FOR THE ADDITIONAL WORK INVOLVED.

THE CONTRACTOR SHALL USE SPECIAL PRECAUTIONS WHERE EXCAVATIONS ARE MADE IN THE AREAS NEAR ELECTRICAL DUCTS SINCE THEY MAY BE HIGH VOLTAGE DUCTS. ALL SUCH DUCTS SHALL BE EXPOSED BY CAREFUL HAND EXCAVATION SO AS NOT TO DAMAGE THE DUCTS OR CAUSE INJURY TO PERSONNEL AND SHALL BE SUITABLY MARKED WITH WARNING SIGNS, BARRICADES, ETC. AS REQUIRED.

STANDARD PRACTICE:

ALL WORK NOT SHOWN IN COMPLETE DETAILS SHALL BE INSTALLED IN CONFORMANCE WITH THE BEST STANDARD PRACTICE FOR THE TRADE.

INTENT:

IT IS THE INTENTION TO PROVIDE SYSTEMS THAT ARE COMPLETE IN EVERY RESPECT WITHOUT FURTHER COST TO THE OWNER. ANYTHING NOT SHOWN IN DRAWINGS, OR INDICATED IN THE SPECIFICATIONS, BUT REQUIRED FOR COMPLETE OPERATING SYSTEMS SHALL BE INCLUDED AS PART OF THIS CONTRACT. THIS SHALL INCLUDE ALL CONNECTIONS TO EXISTING SERVICES.

SPECIAL NOTE:

ATTENTION OF THE CONTRACTOR IS HEREBY CALLED TO ALL WORK COVERED BY NOTES ON THE DRAWINGS. KEYNOTED CONDITIONS SPECIFY PARTICULAR DETAILS REQUIRED FOR THE WORK SO NOTED.

WORK COVERED BY NOTES MUST BE FURNISHED AND INSTALLED WHETHER IT IS SPECIFICALLY MENTIONED IN THESE SPECIFICATIONS OR NOT.

GUARANTEE:

EXCEPT AS OTHERWISE SPECIFIED, ALL MATERIALS, APPARATUS EQUIPMENT FURNISHED AND INSTALLED UNDER THIS SPECIFICATION SHALL BE NEW AND FREE FROM ALL DEFECTS. SHOULD ANY TROUBLE DEVELOP WITHIN A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE OF THE WORK, DUE TO INFERIOR OR FAULTY MATERIAL AND/OR WORKMANSHIP, THE TROUBLE SHALL BE CORRECTED AND MATERIAL AND EQUIPMENT REPLACED BY THE CONTRACTOR WITHOUT EXPENSE TO THE OWNER.

SERVICES:

THE LOCATION OF ANY EXISTING UTILITY SERVICES SHOWN ON THE DRAWINGS IS APPROXIMATE AND SHALL BE CHECKED BY THIS CONTRACTOR FOR EXACT LOCATION.

LIST OF MATERIALS:

WITHIN THIRTY (30) CALENDAR DAYS AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT SEVEN (7) COPIES OF A COMPLETE LIST OF MATERIALS TO BE INSTALLED UNDER THIS CONTRACT, GIVING, IN THE CASE OF EACH ITEM OF MATERIAL TO BE USED, THE NAME OF THE ARTICLE.

ALL SUBSTITUTIONS OF SPECIFIED MATERIALS MUST BE APPROVED BY THE ARCHITECT AS STIPULATED IN THE GENERAL CONDITIONS.

PURCHASE ORDERS AND ACCEPTANCE:

THE CONTRACTOR SHALL FILE WITH THE ARCHITECT TWO (2) CERTIFIED COPIES OF ALL PURCHASE ORDERS, FOR MATERIALS, EQUIPMENT, APPLIANCES AND RENTALS THEREOF WITHIN TWO (2) WEEKS FROM DATE OF NOTICE TO PROCEED WITH THE CONTRACT IF REQUESTED BY THE ARCHITECT.

THE CONTRACTOR SHALL FILE WITH THE ARCHITECT TWO (2) CERTIFIED COPIES OF ACCEPTANCE OF PURCHASE ORDERS FOR MATERIALS, EQUIPMENT, AND APPLIANCES BY THE MANUFACTURER, DISTRIBUTOR OR WHOLESALE HOUSE WITHIN SIX (6) WEEKS FROM THE DATE OF NOTICE TO PROCEED WITH THE CONTRACT IF REQUESTED BY THE ARCHITECT.

FAILURE TO PROVIDE SAME WITHIN THE STIPULATED TIME SHALL BE DEEMED SUFFICIENT CAUSE FOR THE ARCHITECT TO WITHHOLD CERTIFICATES OF PAYMENT FOR WORK COMPLETED OR MATERIALS AND EQUIPMENT PROVIDED BY THE CONTRACTOR OR HIS SUBCONTRACTORS TOWARD THE COMPLETION OF THEIR CONTRACTS.

APPROVED
DIVISION OF THE STATE ARCHITECT
LOS ANGELES REGIONAL OFFICE
DATE 7/12/2015

REGISTERED PROFESSIONAL ENGINEER
VINCENT W. WATERS
No. E 14975
Exp. 6/30/07
ELECTRICAL
STATE OF CALIFORNIA

WATERS ENGINEERING
Consulting Electrical Engineer

2004-22

ORDIZ MELBY ARCHITECTS, INC.

5500 MING AVENUE SUITE 280
BAKERSFIELD, CALIFORNIA 93309
TELEPHONE (661) 832-5258
FACSIMILE (661) 832-4291

LICENSED ARCHITECT
WILLIAM JOHN MELBY
No. C-16835
DEC. 31 2006
RENEWAL DATE
STATE OF CALIFORNIA

LICENSED ARCHITECT
DANNY ESPINOZA ORDIZ
MAY 31 2015
C-14728
STATE OF CALIFORNIA

DANNY E. ORDIZ, A.I.A.
ARCHITECT C-14,728
WILLIAM J. MELBY, A.I.A.
ARCHITECT C-16,835

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL # 03-108679
FILE # 15-6
AC [illegible] FLS CO SS [illegible]
DATE JUL 2 6 2005

PTN:63321-50

SITE IMPROVEMENTS
PORTABLE CLASSROOMS
AT
CHIPMAN JUNIOR
HIGH SCHOOL

BAKERSFIELD CITY
SCHOOL DISTRICT

EISSLER STREET
BAKERSFIELD,
CALIFORNIA
93306

MARK	DATE	DESCRIPTION
SD		D.S.A. APPROVAL
CD		
1	01-13-15	CCD #01
X		
X		
X		

JOB NUMBER: 2004771
CAD DRAWING FILE: 2004-82-E-5.DWG
DRAWN BY: DAJ
CHECKED BY: VWW

CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT DISCREPANCIES TO THE ARCHITECT.

THE DRAWINGS, IDEAS, AND DESIGNS REPRESENTED ON THIS SHEET ARE THE PROPERTY OF THE ARCHITECT.

COPYRIGHT
ORDIZ-MELBY ARCHITECTS, INC. 2002

SHEET TITLE
MATERIAL SPECIFICATIONS

SHEET IDENTIFICATION NUMBER
E-5
SHEET OF

X:\JOBS\04\2004-8X\2004-82\2004-82-E-5 DAJ/VWW 07/22/05