

DVC STUDENT SUCCESS CENTER (SSC) ELECTRICAL ADDITIONS

DIABLO VALLEY COLLEGE, PLEASANT HILL CAMPUS
PROJECT NUMBER 21-008

DRAWING INDEX	
E0.01	ELECTRICAL - LEGEND & NOTES
E0.02	ELECTRICAL - SPECIFICATIONS
E0.03	ELECTRICAL - SCHEDULES
E2.1	ELECTRICAL - PAC FLOOR PLANS
E2.2	ELECTRICAL - PLANETARIUM FLOOR PLAN
E3.1	LIGHTING - PAC FLOOR PLANS
E3.2	LIGHTING - PLANETARIUM FLOOR PLAN

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PROJECT LOCATION:
DIABLO VALLEY COLLEGE, 321 GOLF CLUB RD,
PLEASANT HILL, CA 94523

PROJECT TITLE:	ELECTRICAL - COVER SHEET
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ELECTRICAL SPECIFICATIONS		
<p>PART 1 - GENERAL</p> <p>1.1 GENERAL</p> <p>A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.</p> <p>1.2 SCOPE</p> <p>A. THE WORK UNDER THIS SECTION SHALL INCLUDE FURNISHING ALL LABOR, MATERIALS, TOLD AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF ALL ELECTRICAL WORK AS INDICATED ON THE ELECTRICAL DRAWINGS AND AS HEREIN AFTER SPECIFIED TOGETHER WITH OTHER ITEMS OF MISCELLANEOUS WORK SO INDICATED, EXCEPTING ONLY WORK CLEARLY INDICATED TO BE DONE UNDER OTHER SECTIONS OF THESE SPECIFICATIONS OR UNDER OTHER CONTRACTS.</p> <p>1.3 CONTRACT DRAWINGS</p> <p>A. IN GENERAL, THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE LOCATION OF OUTLETS AND EQUIPMENT AND THEIR INTERCONNECTION; AND THOUGH NOT NECESSARILY INDICATING THE ACTUAL PROPER COORDINATION WITH THE WORK OF THEIR TRADES AND IN SPACE AVAILABLE WILL PERMIT, THE DRAWINGS ARE NOT INTENDED TO BE SCALED. REFER TO THE ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND LIMITATIONS OF THE BUILDING STRUCTURE OR FINISH, AND TO THE MECHANICAL DRAWINGS FOR THE LOCATION OF EQUIPMENT OF THOSE TRADES, REQUIRING ELECTRICAL SERVICE CONNECTIONS. ANY DISCREPANCY, CONFLICT, OR QUESTIONABLE POINT SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT.</p> <p>B. "PROVIDE" MEANS FURNISH, INSTALL, AND CONNECT UNLESS OTHERWISE NOTED.</p> <p>1.4 RECORD DRAWINGS</p> <p>A. DURING THE PROGRESS OF THE WORK, MAINTAIN ONE COMPLETE SET OF RECORD DRAWINGS, AS THE WORK IS INSTALLED, NEATLY AND CLEARLY MARK ON THESE PRINTS THE FOLLOWING INFORMATION:</p> <ol style="list-style-type: none">ALL DEVIATIONS FROM ORIGINAL CONTRACT DRAWINGS.INFORMATION CONTAINED ON CHANGE ORDERS.DIMENSIONED LOCATIONS OF CONCEALED CONDUITS.DIAGRAM OF EQUIPMENT CONNECTIONS. <p>B. AT THE CONCLUSION OF THE JOB, THESE PRINTS SHALL BE DELIVERED TO THE ARCHITECT.</p> <p>1.5 CODES, PERMITS AND INSPECTIONS</p> <p>A. NOTHING IN THESE SPECIFICATIONS OR ON THE DRAWINGS SHALL BE INTERPRETED AS PERMISSION TO VIOLATE CODES OR ORDINANCES. ELECTRICAL WORK SHALL CONFORM TO THE LATEST REVISIONS OF THE FOLLOWING CODES AND STANDARDS:</p> <ol style="list-style-type: none">STATE OF CALIFORNIA, DIVISION OF INDUSTRIAL SAFETY, ELECTRICAL SAFETY ORDERS.NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION.UNDERWRITERS' LABORATORIES.LOCAL CODES AND INSPECTION AUTHORITIES.NATIONAL ELECTRICAL CODE FOR ALL ITEMS NOT SPECIFICALLY COVERED BY STATE OR LOCAL ORDINANCES. <p>B. INSPECT THE JOB SITE PRIOR TO SUBMITTING A BID AND MAKE ALLOWANCE FOR EXISTING CONDITIONS WHICH MAY AFFECT THE WORK AND ARRANGE FOR AND PAY FOR TESTS AND INSPECTIONS, AND GIVE NOTICES REQUIRED BY ANY AND ALL LAWS, RULES, REGULATIONS, AND ORDINANCES WHICH PERTAIN TO THIS WORK, WHERE ADDITIONS OR ALTERATIONS ARE REQUIRED IN OR AT EXISTING ELECTRICAL INSTALLATION AS INDICATED</p> <ol style="list-style-type: none">INFORMATION GIVEN ON THE DRAWINGS REGARDING EXISTING INSTALLATIONS OR CONDITIONS HAS BEEN OBTAINED FROM THE BEST SOURCES AVAILABLE BUT CANNOT BE GUARANTEED ACCURATE IN ALL RESPECTS. VERIFY ALL SUCH INFORMATION BEFORE PROCEEDING WITH ANY NEW WORK THAT MAY BE AFFECTED. INCLUDE AS A PART OF THE CONTRACT ALL WORK REQUIRED TO PRODUCE THE INDICATED RESULT.RELOCATE AND/OR RECONNECT EXISTING CIRCUITS WHERE CONTINUITY HAS BEEN AFFECTED OR AS MAY BE REQUIRED TO PROVIDE FOR NEW CONSTRUCTION.DETACH ALL EXISTING NON-SUPPORTED CONDUITS, BOXES AND ELECTRICAL DEVICES PER CODE.EXTEND NEW WIRING AS REQUIRED TO NEW DEVICES AND OUTLETS. <p>1.6 SUBMITTALS AND SHOP DRAWINGS</p> <p>A. SUBMITTALS SHALL INCLUDE ALL FABRICATION, ERECTION, LAYOUT, AND SETTING DRAWINGS; MANUFACTURERS' STANDARD DRAWINGS; SCHEDULES; DESCRIPTIVE LITERATURE, CATALOGS AND BROCHURES; PERFORMANCE AND TEST DATA; WIRING AND CONTROL DIAGRAMS; DIMENSIONS; SHIPPING AND OPERATING WEIGHTS; SHIPPING SPLITS; SERVICE CLEARANCES; AND ALL OTHER DRAWINGS AND DESCRIPTIVE DATA OF MATERIALS OF CONSTRUCTION AS MAY BE REQUIRED TO SHOW THAT THE MATERIALS, EQUIPMENT OR SYSTEMS AND THE LOCATION THEREOF CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.</p> <p>1.7 SUBSTITUTIONS</p> <p>A. THE ENTIRE COST OF ALL CHANCES OF ANY TYPE DUE TO SUBSTITUTION FOR MATERIALS SPECIFIED SHALL BE BORNE BY THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.</p> <p>1.8 RECORD DRAWINGS</p> <p>A. THE CONTRACTOR SHALL ARRANGE AND PAY FOR ONE SET OF WHITE PRINTS OF THE DRAWINGS, WHICH SHALL BE ALTERED IN RED TO SHOW ALL CHANGES MADE TO THE ORIGINAL LAYOUT. THESE DRAWINGS SHALL BE KEPT CURRENT.</p> <p>B. AS BUILT DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR AT NO ADDITIONAL COST.</p> <p>C. ALL APPROVED OPERATING & OWNER'S MANUALS, SERVICE MAINTENANCE AND WARRANTY DOCUMENTS SHALL BE GIVEN TO OWNER TOGETHER WITH THE CLOSING DOCUMENTS.</p> <p>1.9 GUARANTEES</p> <p>A. THE CONTRACTOR, IN ACCEPTING THIS CONTRACT, BINDS HIMSELF TO REPLACE OR REPAIR AT HIS OWN EXPENSE ANY DEFECT IN WORKMANSHIP OR MATERIAL WHICH MAY APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE TENANT SPACE, AND TO PAY FOR ALL RESULTING DAMAGE WHICH SHALL APPEAR WITHIN THE SAID PERIOD; PROVIDED ALWAYS THAT THE CONTRACTOR SHALL NOT BE LIABLE FOR ANYTHING ATTRIBUTABLE TO ACTS OF THE AGENTS OF THE OWNER, OR FOR ORDINARY WEAR. ALSO, GIVEN DATE OF WORK PERFORMED BY THE CONTRACTOR BE ACCEPTED AS COMPLETE, HE SHALL AGREE TO CORRECT ANY DEFICIENCIES OR OMISSIONS IN RESPECT TO THE PLANS OR SPECIFICATIONS WHICH MAY APPEAR IN THE AFORE-MENTIONED TWENTY-FOUR-MONTH PERIOD.</p> <p>1.10 FEES AND PERMITS</p> <p>A. THE CONTRACTOR MUST OBTAIN AND PAY ALL FEES FOR PERMITS, LICENSES, INSPECTIONS, ETC., WHICH ARE REQUIRED BY ANY LEGALLY CONSTITUTED AUTHORITY. COORDINATE EXACT REQUIREMENTS WITH THE OWNER PRIOR TO BID.</p> <p>1.11 COORDINATION</p> <p>A. FOLLOWING THE GENERAL ARRANGEMENT INDICATED ON THE DRAWINGS AS CLOSELY AS POSSIBLE, THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL, STRUCTURAL, PLUMBING, FIRE SPRINKLER, MECHANICAL AND ALL OTHER TRADES PRIOR TO INSTALLATION OF THE MATERIALS AND EQUIPMENT TO VERIFY ADEQUATE SPACE AVAILABLE FOR INSTALLATION OF THE WORK SHOWN. THE OWNER SHALL BE IMMEDIATELY NOTIFIED IF AN AREA OF CONFLICT OCCURS BETWEEN TRADES.</p>	<p>1.12 INSPECTION</p> <p>A. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF HIS WORK TO BE COVERED UP OR CLOSED IN UNTIL IT HAS BEEN INSPECTED, TESTED, APPROVED BY ALL AUTHORITIES HAVE JURISDICTION, AND UNTIL PROJECT RECORD DRAWINGS HAVE BEEN PROPERLY ANNOTATED.</p> <p>B. SHOULD ANY OF HIS WORK BE COVERED UP OR CLOSED IN BEFORE SUCH INSPECTION, HE SHALL, AT HIS OWN EXPENSE, UNCOVER THE WORK TO THE SATISFACTION OF THE INSPECTION PARTY. ALL RELATED REPAIR WORK COST SHALL BE BORNE BY THE CONTRACTOR.</p> <p>PART 2 - PRODUCTS</p> <p>2.1 GENERAL</p> <p>A. ALL MATERIALS USED IN THE ELECTRICAL WORK HEREIN SPECIFIED SHALL BE NEW AND SUITED TO THE US INTENDED AND SHALL BE LISTED BY THE UNDERWRITERS' LABORATORIES, INC., AND SHALL MEET THEIR REQUIREMENTS AND BEAR THEIR LABEL WHENEVER STANDARDS HAVE BEEN ESTABLISHED AND LABEL SERVICE IS REGULARLY FURNISHED BY THAT AGENCY. THE ARCHITECT RESERVES THE RIGHT TO REJECT ANY MATERIAL WHICH IN HIS OPINION IS NOT IN COMPLIANCE WITH THIS SPECIFICATION, EITHER BEFORE OR AFTER INSTALLATION. ALL MATERIALS SHALL BE OF THE TYPES OR MAKES HEREINAFTER SPECIFIED, AND NO SUBSTITUTIONS WILL BE PERMITTED WITHOUT SUBMITTAL FOR REVIEW BY THE ARCHITECT. "PRODUCTS" AND "MATERIALS" ARE USED INTERCHANGEABLY AND MEANS MATERIAL, FIXTURE AND EQUIPMENT.</p> <p>2.2 RACEWAYS AND BOXES</p> <p>A. PROVIDE ONLY NEW CONDUIT WITH UL LISTING OR LABEL AND DELIVER TO THE SITE IN STANDARD LENGTHS. UNLESS OTHERWISE INDICATED, PROVIDE CONDUITS FOR ALL TYPES OF CONDUCTORS OR CABLES OF ALL SYSTEMS AND VOLTAGES INDICATED.</p> <ol style="list-style-type: none">RIGID METALLIC CONDUIT (RMC):<ol style="list-style-type: none">MINIMUM SIZE GALVANIZED STEEL: 3/4 INCH (19MM), UNLESS OTHERWISE NOTED.END BELL FITTINGS: MALLEABLE IRON, HOT DIP GALVANIZED, THREADED FLARE TYPE WITH PROVISIONS FOR MOUNTING TO FORM.EXPANSION JOINTS: MALLEABLE IRON AND HOT DIP GALVANIZED PROVIDING A MINIMUM OF 4 INCHES OF MOVEMENT. FITTING SHALL BE WATERTIGHT WITH AN INSULATING BUSHING AND A BONDING JUMPER.EXPANSION JOINT FOR CONCRETE ENCASED CONDUIT: NEOPRENE SLEEVE WITH BRONZE END COUPLING, STAINLESS STEEL BANDS AND TINNED COPPER BRAID BONDING JUMPER. FITTINGS SHALL BE WATERTIGHT AND CONCRETE TIGHT.CONDUIT END BUSHINGS: MALLEABLE IRON TYPE WITH MOLDED ON HIGH IMPACT PHENOLIC THERMOSETTING INSULATION, WHERE REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS, BUSHING SHALL BE COMPLETE WITH GROUND CONDUCTOR SADDLE AND CLAMP. HIGH IMPACT PHENOLIC THREADED TYPE BUSHINGS ARE NOT ACCEPTABLE.ALL OTHER FITTINGS AND CONDUIT BODIES SHALL BE OF MALLEABLE IRON CONSTRUCTION AND HOT DIP GALVANIZED.ELECTRICAL METALLIC TUBING (EMT):<ol style="list-style-type: none">MINIMUM SIZE ELECTRICAL METALLIC TUBING: 3/4 INCH UNLESS OTHERWISE NOTED.FITTINGS AND CONDUIT BODIES 2" DIAMETER OR SMALLER, COMPRESSION TYPE OF STEEL DESIGNED FOR THEIR SPECIFIC APPLICATION, LARGER THAN 2": COMPRESSION TYPE OF STEEL DESIGNED FOR THEIR SPECIFIC APPLICATION.FLEXIBLE METALLIC CONDUIT (FMC):<ol style="list-style-type: none">MINIMUM SIZE GALVANIZED STEEL: 3/4 INCH, UNLESS OTHERWISE NOTED. LIGHTING BRANCH CIRCUIT WIRING TO AN INDIVIDUAL LUMINAIRE MAY BE A MANUFACTURED, UL LISTED 3/8" FLEXIBLE METAL CONDUIT AND FITTINGS WITH #14 AWG THHN CONDUCTORS AND AN INSULATED GROUND WIRE. MAXIMUM LENGTH OF 38" FMC SHALL BE SIX (6) FEET.CONSTRUCTION: FLEXIBLE STEEL, APPROVED FOR CONDUIT GROUND, ZINC COATED, THREADLESS TYPE FORMED FROM A CONTINUOUS LENGTH OF SPIRALLY WOUND, INTERLOCKED ZINC COATED STRIP STEEL. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR WHEN USED FOR EQUIPMENT WHERE FLEXIBILITY IS REQUIRED.FITTINGS AND CONDUIT BODIES: COMPRESSION TYPE OF STEEL. FITTINGS AND CONDUIT BODIES SHALL INCLUDE PLASTIC OR CAST METAL INSERTS SUPPLIED BY THE MANUFACTURER TO PROTECT CONDUCTORS FROM SHARP EDGES.LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC):<ol style="list-style-type: none">CONSTRUCTION: FLEXIBLE STEEL, APPROVED FOR CONDUIT GROUND, ZINC COATED, THREADLESS TYPE FORMED FROM A CONTINUOUS LENGTH OF SPIRALLY WOUND, INTERLOCKED ZINC COATED STRIP STEEL AND AN EXTRUDED PVC COVER.FITTINGS AND CONDUIT BODIES: WATERTIGHT, COMPRESSION TYPE OF STEEL, GALVANIZED ZINC COATED CADMIUM PLATED MALLEABLE CAST IRON, UL LISTED. FITTINGS AND CONDUIT BODIES SHALL INCLUDE PLASTIC OR CAST METAL INSERTS SUPPLIED BY THE MANUFACTURER TO PROTECT CONDUCTORS FROM SHARP EDGES.RIGID NON-METALLIC CONDUIT (PVC):<ol style="list-style-type: none">MINIMUM SIZE RIGID SMOOTH WALL NONMETALLIC CONDUIT: 3/4 INCH, UNLESS OTHERWISE NOTED.CONSTRUCTION: SCHEDULE 40 AND SCHEDULE 80 RIGID POLYVINYL CHLORIDE (PVC), UL LABELED FOR 90 C.FITTINGS AND CONDUIT BODIES: NEMA TC 3; SLEEVE TYPE SUITABLE FOR AND MANUFACTURED ESPECIALLY FOR USE WITH THE CONDUIT BY THE CONDUIT MANUFACTURER.PLASTIC CEMENT FOR JOINING CONDUIT AND FITTINGS SHALL BE PROVIDED AS RECOMMENDED BY THE MANUFACTURER. <p>2.3 OUTLET BOXES</p> <p>A. SHEET METAL OUTLET BOXES: ANSINEMA OS 1; GALVANIZED STEEL, MINIMUM OF 14 GAUGE, WITH 1/2 INCH MALE FIXTURE STUDS WHERE REQUIRED.</p> <p>B. NONMETALLIC OUTLET BOXES: ANSINEMA OS 2.</p> <p>C. CAST BOXES: NEMA FB1, TYPE FD, ALUMINUM OR CAST FERALLOY, DEEP TYPE, GASKETED COVER, THREADED NUBS.</p> <p>D. OUTLET BOXES FOR LUMINAIRES TO BE NOT LESS THAN 1 1/2" DEEP. DEEPER IF REQUIRED BY THE NUMBER OF WIRES OR CONSTRUCTION. THE BOX SHALL BE COORDINATED WITH SURFACE LUMINAIRES TO CONCEAL THE BOX FROM VIEW OR PROVIDE A FINISHED TRIM PLATE.</p> <p>E. SWITCH OUTLET BOXES FOR LOCAL LIGHT CONTROL SWITCHES, DIMMERS AND OCCUPANCY SENSORS SHALL BE 4 INCHES SQUARE BY 2 1/8 INCHES DEEP, WITH RAISED COVER TO FIT FLUSH WITH FINISH WALL LINE. MULTIPLE GANG SWITCH OUTLETS SHALL CONSIST OF THE REQUIRED NUMBER OF GANG BOXES APPROPRIATE TO THE QUANTITY OF SWITCHES COMPRISING THE GANG. WHERE WALLS ARE PLASTERED, PROVIDE A PLASTER RAISED COVER. WHERE SWITCH OUTLET BOXES OCCUR IN EXPOSED CONCRETE BLOCK WALLS, BOXES SHALL BE INSTALLED IN THE BLOCK CAVITY WITH A RAISED SQUARE EDGE TILE COVER OF SUFFICIENT DEPTH TO EXTEND OUT TO FACE OF BLOCK OR MASONRY BOXES.</p>	<p>F. WALL OR COLUMN RECEPTACLE OUTLET BOXES SHALL BE 4 INCHES SQUARE WITH RAISED COVER TO FIT FLUSH WITH FINISHED WALL LINE. BOXES IN CONCRETE BLOCK WALLS SHALL BE INSTALLED THE SAME AS FOR SWITCH BOXES IN BLOCK WALLS.</p> <p>2.4 PULL AND JUNCTION BOXES</p> <p>A. SHEET METAL BOXES: ANSINEMA OS 1; GALVANIZED STEEL.</p> <p>B. SHEET METAL BOXES LARGER THAN 12 INCHES IN ANY DIMENSION THAT CONTAIN TERMINATIONS OR COMPONENTS: CONTINUOUS HINGED ENCLOSURE WITH 1/4 TURN LATCH AND WHITE BACK PANEL FOR MOUNTING TERMINAL BLOCKS AND ELECTRICAL COMPONENTS.</p> <p>C. CAST METAL BOXES FOR OUTDOOR AND WET LOCATION INSTALLATIONS: NEMA 250; TYPE 4 AND TYPE 6, FLAT FLANGED, SURFACE MOUNTED JUNCTION BOX, UL LISTED AS RAIN TIGHT. GALVANIZED CAST IRON BOX AND COVER WITH GROUND FLANGE, NEOPRENE GASKET, AND STAINLESS STEEL COVER SCREWS.</p> <p>D. CAST METAL BOXES FOR UNDERGROUND INSTALLATIONS: NEMA 250; TYPE 4, INSIDE FLANGED, RECESSED COVER BOX FOR FLUSH MOUNTING, UL LISTED AS RAIN TIGHT. GALVANIZED CAST IRON BOX AND PLAIN COVER WITH NEOPRENE GASKET AND STAINLESS STEEL COVER SCREWS.</p> <p>E. FLANGED TYPE BOXES SHALL BE USED WHERE INSTALLED FLUSH IN WALL.</p> <p>2.5 WIRE AND CABLE</p> <p>A. FEEDERS AND BRANCH CIRCUITS LARGER THAN 6 AWG: COPPER, STRANDED CONDUCTOR, 600 VOLT INSULATION, THHN/THWN OR XHHW-2.</p> <p>B. FEEDERS AND BRANCH CIRCUITS LARGER THAN 6 AWG IN UNDERGROUND CONDUIT: COPPER, STRANDED CONDUCTOR, 600 VOLT INSULATION, THWN OR XHHW-2.</p> <p>C. FEEDERS AND BRANCH CIRCUITS 6 AWG AND SMALLER: COPPER CONDUCTOR, 600 VOLT INSULATION, THHN/THWN, SOLID CONDUCTOR, UNLESS OTHERWISE NOTED ON THE DRAWINGS.</p> <p>D. MOTOR FEEDER FROM VARIABLE FREQUENCY DRIVES: COPPER CONDUCTOR, 600 VOLT XHHW-2 INSULATION, STRANDED CONDUCTOR, UNLESS OTHERWISE NOTED ON THE DRAWINGS. OVERALL HELICAL COPPER TAPE SHIELD. SHIELD SHALL BE TERMINATED AT BOTH ENDS OF CABLE WITH AN APPROVED TERMINATION.</p> <p>E. CONTROL CIRCUITS: COPPER, STRANDED CONDUCTOR 600 VOLT INSULATION, THHN/THWN.</p> <p>F. EACH 120 AND 277 VOLT BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR. NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT-CARRYING CONDUCTORS FOR WIRE DERATING.</p> <p>G. REMOTE CONTROL AND SIGNAL CABLE:</p> <ol style="list-style-type: none">CONTROL CABLE FOR CLASS 1 REMOTE CONTROL AND SIGNAL CIRCUITS: COPPER CONDUCTOR, 600 VOLT INSULATION, RATED 60°C, INDIVIDUAL CONDUCTORS TWISTED TOGETHER, SHIELDED, AND COVERED WITH A PVC JACKET.CONTROL CABLE FOR CLASS 2 OR CLASS 3 REMOTE CONTROL AND SIGNAL CIRCUITS: COPPER CONDUCTOR, 300 VOLT INSULATION, RATED 60°C, INDIVIDUAL CONDUCTORS TWISTED TOGETHER, SHIELDED, AND COVERED WITH A PVC JACKET; UL LISTED.PLENUM CABLE FOR CLASS 2 OR CLASS 3 REMOTE CONTROL AND SIGNAL CIRCUITS: COPPER CONDUCTOR, 300 VOLT INSULATION, RATED 60°C, INDIVIDUAL CONDUCTORS TWISTED TOGETHER, SHIELDED, AND COVERED WITH A NONMETALLIC JACKET; UL LISTED FOR USE IN AIR HANDLING DUCTS, HOLLOW SPACES USED AS DUCTS, AND PLENUMS. <p>H. FIRE-RATED CABLE: TWO-HOUR FIRE RATED MINERAL INSULATED CABLES: COPPER CONDUCTOR, 600 VOLT INSULATION, RATED 125°C, TYPE MI.</p> <p>2.6 LIGHTING FIXTURES</p> <p>A. PROVIDE RECESSED, SURFACE, AND PENDANT MOUNTED LIGHTING FIXTURES, COMPLETE WITH LAMPS, AND EMERGENCY DRIVERS WHERE REQUIRED, AS SHOWN ON THE DRAWINGS.</p> <p>B. DRIVERS OF PROPER TYPE AND CHARACTERISTICS FOR THE LAMPS IN THE FIXTURE AND WITH VOLTAGE RATING AS REQUIRED BY THE CIRCUIT WHICH THE FIXTURE IS CONNECTED.</p> <p>C. PROVIDE ALL REQUIRED ACCESSORIES TO ACHIEVE A COMPLETE INSTALLATION OF THE FIXTURE, SUCH AS MOUNTING BRACKETS, POWER SUPPLIES, HANGERS, AND JUNCTION BOXES.</p> <p>D. COORDINATE LIGHTING CONTROLS WITH FIXTURE DIMMING DRIVER TO ACHIEVE A COMPATIBLE SYSTEM.</p> <p>2.7 WIRING DEVICES</p> <p>A. WIRING DEVICES SHALL BE OF THE MOLDED COMPOSITION SPECIFICATION GRADE. ALL DEVICES SHALL BE FLUSH MOUNTED UNLESS OTHERWISE NOTED AND WITH FINISH MATCHING DEVICE PLATES. LOCAL SWITCHES SHALL HAVE ALTERNATING CURRENT RATINGS EQUAL TO FULL NOMINAL CAPACITY.</p> <ol style="list-style-type: none">RECEPTACLES: 20 AMP, 125VAC, COMPLIES WITH CEC REQUIREMENTS FOR TAMPER-RESISTANT OUTLETS. PROVIDE TYPE IN ACCORDANCE WITH NEMA STANDARD CONFIGURATION AS SHOWN.SWITCHES: SINGLE POLE, 3-WAY AND 4-WAY AS SHOWN, FINISH AS SELECTED. REFER TO WIRING DIAGRAM ON DRAWINGS FOR BASIS OF DESIGN.PROVIDE PLATES FOR ALL OUTLET BOXES AND FITTINGS OF ALL SYSTEMS EXCEPT AT OUTLETS WHERE FIXTURE CANOPIES ARE USED. <p>2.8 NAMEPLATES</p> <p>A. PROVIDE A NAMEPLATE FOR EACH PANEL BOARD, DISCONNECT SWITCH, AND FOR ANY OTHER CONTROL DEVICE OR MAJOR ITEM OF ELECTRICAL EQUIPMENT, AS FOLLOWS:</p> <ol style="list-style-type: none">PROVIDE BLACK-ON-WHITE LAMINATED PLASTIC NAMEPLATES ENGRAVE IN 1/2" HIGH LETTERS TO CORRESPOND WITH THE DESIGNATIONS ON THE DRAWINGS. PROVIDE OTHER OR ADDITIONAL INFORMATION ON NAMEPLATES WHERE INDICATED.ATTACH NAMEPLATES TO EQUIPMENT WITH RIVETS, BOLTS, OR APPLICABLE SHEET METAL SCREWS. GLUE-ON TYPES AND POP RIVET TYPES ARE NOT ACCEPTABLE.PROVIDE DYMO TYPE PLASTIC TAPE FOR EACH RECEPTACLE AND J-BOX INDICATING CIRCUIT NUMBERS AND PANEL. PROVIDE ADDITIONAL INFORMATION AS INDICATED ON THE DRAWINGS. THE COLOR CODE FOR THE TAPES SHALL BE AS FOLLOWS:<ol style="list-style-type: none">ORANGE FOR ISOLATED GROUND CIRCUITS.BLACK FOR STANDARD 120V CIRCUITS. <p>2.9 SAFETY SWITCHES</p> <p>A. PROVIDE SWITCHES WITH THE NUMBER OF POLES AND THE VOLTAGE CURRENT AND HORSEPOWER RATINGS AS REQUIRED. PROVIDE EXTERNALLY OPERABLE, QUICK-MAKE, QUICK-BREAK TYPE WITH COVER INTERLOCK AND PADLOCKABLE IN EITHER THE OPEN OR CLOSED POSITION, UNLESS INDICATED OTHERWISE. PROVIDE SWITCHES INDOORS IN NEMA TYPE 1 ENCLOSURE AND OUTDOORS, OR WHERE INDICATED TO BE WEATHERPROOF IN NEMA SPECIFICATIONS KS1-2.02. PROVIDE NAMEPLATES INDICATING EQUIPMENT SERVED.</p> <p>2.10 PANELBOARDS</p> <p>A. PROVIDE SURFACE MOUNTED PANELBOARD WITH MAIN LUGS, SUBFEED LUGS, BUS SIZE AND CIRCUIT BREAKERS OF A RATING AS SHOWN ON THE DRAWINGS.</p> <p>B. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE WITH INTERRUPTING CAPACITY AS SHOWN ON THE PANEL SCHEDULE. SINGLE POLE BREAKERS SHALL BE FULL MODULE SIZE. MULTIPOLE BREAKERS SHALL BE OF THE COMMON TRIP TYPE HAVING A SINGLE HANDLE.</p> <p>C. PROVIDE NEATLY TYPED CIRCUIT DIRECTORY CARD, CLEARLY IDENTIFYING ALL CIRCUITS, MOUNTED IN A CARD HOLDER, BEHIND HEAVY PLASTIC ON THE INSIDE OF THE HINGED DOOR.</p>
<p>PART 3 - EXECUTION</p> <p>3.1 MATERIALS AND WORKMANSHIP</p> <p>A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER TO CONFORM WITH THE CONTRACT DOCUMENTS. THE INSTALLATION SHALL BE ACCOMPLISHED IN CONFORMANCE WITH THE APPLICABLE RULES.</p> <p>3.2 WIRE AND WIRING METHODS</p> <p>A. ALL WIRING AND CABLE INCLUDING LOW VOLTAGE AND CONTROL CIRCUITS SHALL BE INSTALLED IN CONDUIT UNLESS OTHERWISE NOTED.</p> <ol style="list-style-type: none">COLOR CODE ALL BRANCH CIRCUIT AND CONTROL CIRCUIT WIRING BY MEANS OF FACTORY COLOR CODED CONDUCTORS. EACH PHASE SHALL BE THE SAME COLOR THROUGHOUT THE SYSTEM AND SHALL BE A DIFFERENT COLOR FROM OTHER PHASES AND OTHER SYSTEMS THE IDENTIFIED NEUTRAL CONDUCTOR SHALL BE WHITE, AND GROUND WIRES SHALL BE GREEN. <p>3.3 CONDUIT</p> <p>A. EXCEPT WHEN OTHERWISE INDICATED AS MORE STRINGENT, PROVIDE THE TYPE OF CONDUIT, LEGALLY PERMITTED OR REQUIRED FOR EACH LOCATION OR CONDITION, UNLESS INDICATED OTHERWISE. CONDUITS SHALL BE CONCEALED WHERE POSSIBLE WITHIN OR BEHIND FINISHED WALLS OR CEILINGS.</p> <ol style="list-style-type: none">ELECTRICAL METALLIC TUBING (MT) MAY BE INSTALLED ONLY WITHIN BUILDINGS ABOVE GRADE IN DRY LOCATIONS AND WHERE NOT SUBJECT TO MECHANICAL INJURY OR OTHERWISE PROHIBITED.USE RIGID METAL CONDUIT WHERE LEGALLY REQUIRED, WHERE EXPOSED TO THE WEATHER; ALSO WHERE SUBJECT TO MECHANICAL INJURY, HERE DEFINED AS EXPOSED CONDUIT LESS THAN 7'-6" ABOVE THE FLOOR, WHERE UNDERGROUND, AND WHERE OTHER TYPES OF CONDUITS ARE NOT ALLOWED UNDER THIS SPECIFICATION. <p>B. PROVIDE A GREEN INSULATION GROUNDING CONDUCTOR OF SIZE AS REQUIRED BY CODE IN ALL FLEXIBLE CONDUITS OR OTHER CONDUIT RUNS HAVING A LENGTH OF FLEXIBLE CONDUIT AS ANY PART OF TE RUN. USE FLEXIBLE CONDUIT ONLY AS FOLLOWS:</p> <ol style="list-style-type: none">WHERE INDICATED.FINAL CONNECTIONS TO MOTORS, TRANSFORMER, VIBRATING EQUIPMENT OR WHERE REQUIRED FOR EQUIPMENT SERVICING.CONNECTIONS TO RECESSED LIGHTING FIXTURES FROM NEARBY ACCESSIBLE JUNCTION BOXES.CONCEALED RUNS IN DRY LOCATIONS WHERE STRUCTURAL CONDITIONS PREVENT THE USE OF OTHER TYPES OF CONDUIT.IN DAMP LOCATIONS OR AREAS EXPOSED TO THE WEATHER, FLEXIBLE CONDUIT, WHERE REQUIRED, SHALL BE OF THE LIQUID-TIGHT TYPE PROVIDED THE JACKET TEMPERATURE LIMITATIONS WILL NOT BE EXCEEDED.SUPPORT CONDUIT AT LEGAL INTERVALS. PROVIDE ADDITIONAL SUPPORTS WHERE OBVIOUSLY REQUIRED OR AS DIRECTED. <p>3.4 LIGHTING FIXTURES</p> <p>A. FURNISH AND INSTALL FIXTURES COMPLETE IN CONFORMANCE WITH THE SPECIFICATION, THE REQUIREMENTS SPECIFIED BELOW, AND DETAILED ON THE DRAWINGS. DETAILS SHOWN ON THE DRAWINGS ARE INDICATIVE OF THE GENERAL TYPE DESIRED AND ARE NOT INTENDED TO RESTRICT SELECTION TO FIXTURES OF ANY PARTICULAR MANUFACTURER. (SUBMIT FOR ARCHITECTS' APPROVAL)</p> <ol style="list-style-type: none">LIGHTING FIXTURES SHALL BE SET PLUMB, SQUARE, LEVEL, AND IN ALIGNMENT AND SHALL BE SECURED IN ACCORDANCE WITH THE MANUFACTURERS' DIRECTIONS AND SHOP DRAWINGS EXCEPT AS OTHERWISE NOTED. ACCESSORIES SUCH AS STRAPS, MOUNTING PLATES, NIPPLES, OR BRACKETS SHALL BE PROVIDED FOR PROPER INSTALLATION.WHERE CONTINUOUS ROWS ARE INDICATED, PROVIDE ALL NECESSARY ACCESSORIES WHERE SINGLE-LAMP FIXTURES ARE INDICATED IN CONTINUOUS ROWS PROVIDE TANDEM UNITS WHEREVER POSSIBLE.WHERE FIXTURES ARE FOR LAY-IN MOUNTING IN AN EXPOSED RUNNER TYPE OF CEILING, THE ADDITIONAL CEILING WIRE TIES FOR THE FIXTURES WILL BE PROVIDED AS PART OF THE CEILING WORK. CONTRACTOR SHALL INSTALL AND TIE OFF EACH FIXTURE. IN SUCH CEILINGS OR SIMILAR, PROVIDE EACH FIXTURES WITH CLIPS (4 REQUIRED) OR EQUIVALENT MEANS TO PREVENT THE ACCIDENTAL DISENGAGEMENT OF THE FIXTURE FROM THE CEILING.LAMPS OF THE PROPER SIZE, TYPE, WATTAGE, AND VOLTAGE RATINGS AS INDICATED ON THE DRAWINGS SHALL BE DELIVERED TO THE PROJECT IN THE ORIGINAL CARTOONS AND INSTALLED IN THE FIXTURES JUST PRIOR TO THE COMPLETION OF THE PROJECT. LAMPS THAT HAVE BEEN USED DURING THE CONSTRUCTION SHALL BE REPLACED WITH NEW UNITS SO AS TO ASSURE A NEW INSTALLATION AT THE TIME OF FINAL ACCEPTANCE. <p>3.5 EQUIPMENT CONNECTIONS</p> <p>A. ALL WIRING FOR THE CONNECTION OF MOTORS AND CONTROL EQUIPMENT AS INDICATED ON THE DRAWING SHALL BE FURNISHED AND INSTALLED UNDER THIS SECTION OF THESE SPECIFICATIONS.</p> <p>B. FLEXIBLE CONNECTIONS OF SHORT LENGTH SHALL BE PROVIDED FOR EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT AND FOR ALL MOTORS. LIQUID-TIGHT FLEXIBLY CONDUIT SHALL BE USED IN WET LOCATIONS. A SEPARATE GROUND CONDUCTOR SHALL BE PROVIDED ACROSS ALL FLEXIBLE CONNECTIONS.</p> <p>3.6 TESTS</p> <p>A. IN ADDITION TO TESTS REQUIRED BY OTHER SECTIONS, PERFORM OR CAUSE TO BE PERFORMED, ANY TESTS SPECIFIED FOR ELECTRICAL WORK WHEN THE WORK IS SUBSTANTIALLY COMPLETE, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:</p> <ol style="list-style-type: none">UPON COMPLETION OF THE WORK AND ADJUSTMENT OF ALL EQUIPMENT, CONDUCT AN OPERATING TEST AND SUBMIT FOR APPROVAL AT SUCH TIME AS THE ARCHITECT DIRECTS. CONDUCT THE TEST IN THE PRESENCE OF AN AUTHORIZED REPRESENTATIVE OF THE ARCHITECT. DEMONSTRATE THAT ALL SYSTEMS AND EQUIPMENT ARE:<ol style="list-style-type: none">OPERATING IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.FREE FROM ALL ELECTRICAL AND MECHANICAL DEFECTS.FREE FROM SHORT CIRCUITS AND GROUNDS OTHER THAN INTENTIONAL GROUNDS.CONDUCT ALL OTHER AND ADDITIONAL TESTS THAT ARE REQUIRED BY AUTHORITIES HAVING JURISDICTION OR ARE REQUESTED BY THE ARCHITECT.ALL COSTS INCURRED, INCLUDING REQUIRED INSTRUMENTS AND PERSONNEL FOR THE TESTS, SHALL BE PAID FOR BY THE CONTRACTOR. <p>3.7 CUTTING AND PATCHING</p> <p>A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CUTTING AND PATCHING OF ROUGH OR FINISH WORK REQUIRED BY THIS INSTALLATION. PATCHING SHALL BE OF THE SAME MATERIAL, FINISH AND WORKMANSHIP AS THE ORIGINAL, AND WHEN REQUIRED BY THE ARCHITECT, DONE BY THE ORIGINAL TRADE AT CONTRACTOR'S EXPENSE.</p>		

DO NOT SCALE DRAWING. ALL MARKED DIMENSIONS TAKE PRECEDENT ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY CONTRACTOR PRIOR TO EXECUTION OF WORKS.

PROJECT LOCATION:

DIABLO VALLEY COLLEGE, 321 GOLF CLUB RD,
PLEASANT HILL, CA 94523

PROJECT TITLE:

ELECTRICAL -
SPECIFICATIONS

DRAWING TITLE:

CLIENT PROJECT NO:

SCALE:
NONE

ENGINEER:

CLIENT - DWG FILE NO:

DRAWN BY:

SHEET NO.

DATE:

E0.02

NOT FOR CONSTRUCTION

WIRING SCHEDULE - COPPER CONDUCTORS (0-600V)										
CIRCUIT RATING	CONDUIT SIZE (INCHES)							CONDUCTOR SIZE		
	NONE	G	N	NG	NGI	NNG	NNGI	PHASE/ NEUTRAL	GND/ * IG	
15	0.75	0.75	0.75	0.75	0.75	0.75	0.75	12	12	
20	0.75	0.75	0.75	0.75	0.75	0.75	0.75	12	12	
30	0.75	0.75	0.75	0.75	0.75	0.75	0.75	10	10	
40	0.75	0.75	0.75	1	1	1	1	8	10	
50	1	1	1	1.25	1.25	1.25	1.25	6	10	
60	1	1.25	1.25	1.25	1.5	1.5	1.5	4	10	
70	1	1.25	1.25	1.25	1.5	1.5	1.5	4	8	
80	1.25	1.25	1.25	1.5	2	2	2	2	8	
90	1.25	1.25	1.25	1.5	2	2	2	2	8	
100	1.25	1.5	1.5	2	2	2	2.5	1	8	
110	1.25	1.5	1.5	2	2	2	2.5	1	6	
125	1.25	1.5	1.5	2	2	2	2.5	1/0	6	
150	1.5	2	2	2	2.5	2.5	2.5	1/0	6	
175	1.5	2	2	2	2.5	2.5	2.5	2/0	6	
200	2	2	2	2.5	2.5	2.5	3	3/0	6	
225	2	2.5	2.5	2.5	3	3	3	4/0	4	
250	2.5	2.5	2.5	3	3	3	3.5	250	4	
300	2.5	3	3	3.5	3.5	3.5	4	350	4	
350	3	3.5	3.5	4	4	4	5	500	2	
400	2@2	2@2	2@2	2@2.5	2@2.5	2@2.5	2@3	3/0	2	
450	2@2	2@2.5	2@2.5	2@2.5	2@3	2@3	2@3	4/0	2	
500	2@2.5	2@2.5	2@2.5	2@3	2@3	2@3	2@3.5	250	1	
600	2@2.5	2@3	2@3	2@3.5	2@3.5	2@3.5	2@4	350	1	
700	2@3	2@3.5	2@3.5	2@4	2@4	2@4	2@5	500	1/0	
800	3@2.5	3@3	3@3	3@3.5	3@3.5	3@3.5	3@3.5	300	1/0	
1000	3@3	3@3	3@3	3@3.5	3@4	3@4	3@4	400	2/0	
1200	4@2.5	4@3	4@3	4@3.5	4@3.5	4@3.5	4@4	350	3/0	
1600	5@3	5@3	5@3	5@3.5	5@4	5@4	5@4	400	4/0	
2000	6@3.5	6@3.5	6@3.5	6@4	6@4	6@4	6@5	500	250	
2500	7@3.5	7@3.5	7@3.5	7@4	7@4	7@4	7@4	500	350	
3000	8@3.5	8@3.5	8@3.5	8@4	8@4	8@4	8@4	500	400	

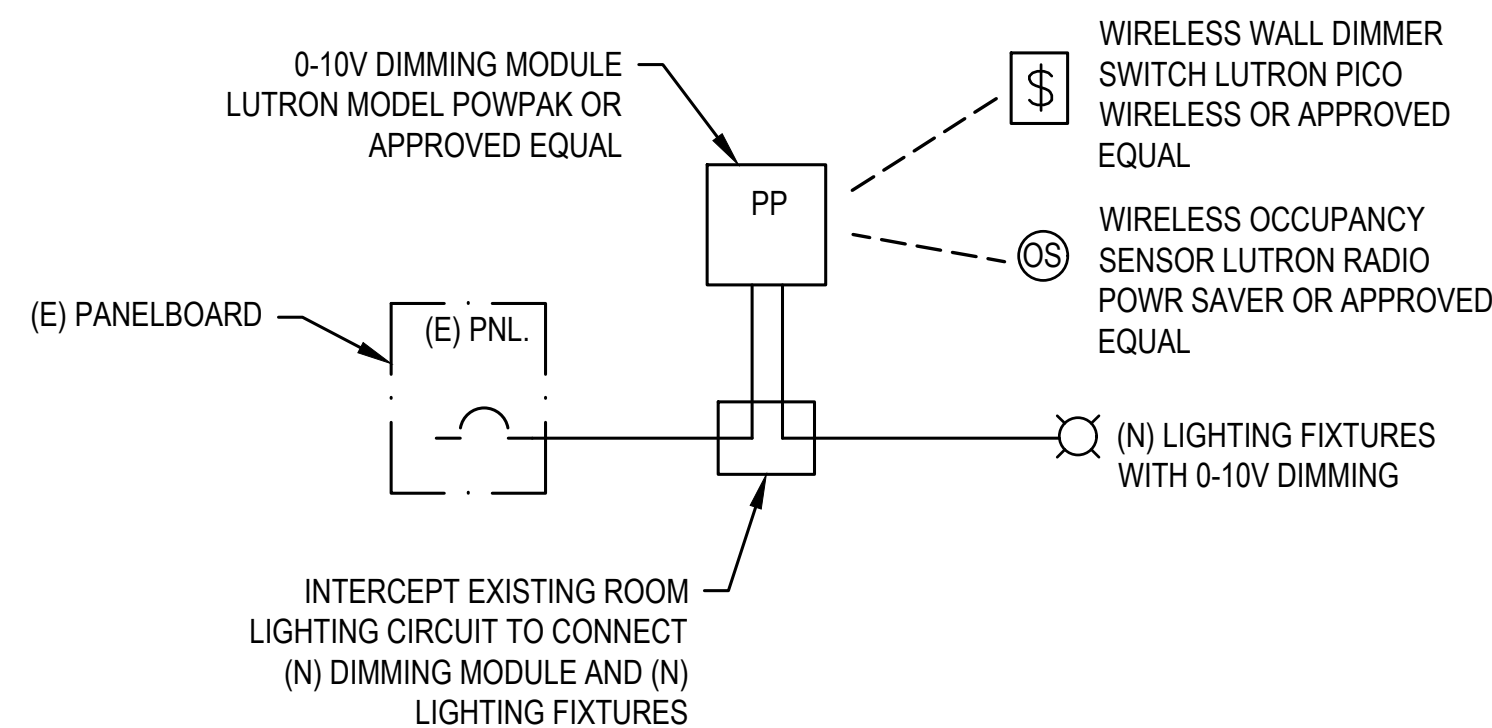
SUBSCRIPT KEY	
SUBSCRIPT	CONDUCTORS PER CONDUIT
NONE	3 PHASE CONDUCTORS, CONDUIT GROUND
G	3 PHASE CONDUCTORS, 1 GROUNDING CONDUCTOR
N	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, CONDUIT GROUND
NG	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR
NGI	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR
NNG	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS*, 1 GROUNDING CONDUCTOR
NNGI	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS*, 1 GROUNDING CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR

* SINGLE NEUTRAL CONDUCTOR SIZES FOR CIRCUIT RATING 125 AND LESS						
PARALLEL CONDUCTORS ARE NOT PERMITTED UNDER #1/0. WHERE DOUBLE NEUTRAL CONDUCTORS ARE INDICATED, PROVIDE AN OVERSIZED NEUTRAL CONDUCTOR IN ACCORDANCE WITH THE FOLLOWING TABLE:						
CIRCUIT RATING	15	20	30	40	50	60
SINGLE NEUTRAL CONDUCTOR SIZE	10	8	4	2	1	1/0
CIRCUIT RATING	70	80	90	100	125	
SINGLE NEUTRAL CONDUCTOR SIZE	2/0	3/0	4/0	250	250	
EXAMPLES						
<div><div>SOURCE</div><div>225NG</div><div>LOAD</div></div> <div>CIRCUIT RATING</div> <div>225 NG</div> <div>SUBSCRIPT</div>						
NOTES						
1. SCHEDULE IS BASED ON 3 CURRENT CARRYING CONDUCTORS IN RACEWAY, CABLE OR EARTH, AT AMBIENT AIR TEMPERATURE OF 30°C (86°F).						
2. MODIFY IF USE OF 600MCM CONDUCTORS ARE DESIRED CONFIRM LUG SIZES ARE AVAILABLE.						
3. WIRING DESIGNATIONS ARE SHOWN FOR 3PHASE SYSTEMS. CONTRACTOR SHALL REDUCE THE NUMBER OF WIRES AS NEEDED FOR 1PHASE AND 2-POLE SYSTEMS.						

4

WIRING SCHEDULE

SCALE: NONE



SEQUENCE OF OPERATIONS:

- (N) LIGHTING FIXTURES SHALL BE CONTROLLED FROM OCCUPANCY SENSOR AND WALL SWITCH VIA (N) DIMMING ROOM CONTROLLER. FIXTURES SHALL BE OFF WHEN THE AREA IS UNOCCUPIED.

3

TYPICAL LIGHTING CONTROL DIAGRAM

SCALE: NONE

LIGHTING FIXTURE SCHEDULE										
TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP(S)	DRIVER	DIMMING TYPE	VOLTS (V)	WATTS (W)	MOUNTING TYPE	LOCATION
F1	4" APERTURE FIXTURE WITH UP AND DOWN LIGHT OPTION, LENGTH AS SHOWN ON DRAWINGS, 3500K, 80 CRI. PROVIDE SUSPENSION KITS, PRE-INSTALLED LINKING BRACKETS AND T AND L JOINT TYPE AS REQUIRED TO REPLACE EXISTING FIXTURE AT SAME LOCATION.	WESTGATE	SCX4-UP/DOWN-LENGTH-60W-MCT4-D-3500K + LINKING BRACKETS + JOINTS	LED	LED DIMMING DRIVER	0-10V	120	101LF	PENDANT	PAC ROOMS AND PLANETARIUM LOBBY
F2	2'X4' RECESSED TROFFER, FLAT PANEL, 3500K, 80 CRI, 5250 LUMENS. REPLACE FIXTURE AT SAME LOCATION.	WESTGATE	LPNG-2X4-5KLM-3500K	LED	LED DIMMING DRIVER	0-10V	120	50	RECESSED	PLANETARIUM LOBBY
F3	11" PARABOLIC FIXTURE WITH UP AND DOWN LIGHT OPTION, LENGTH AS SHOWN ON DRAWINGS, 3500K, 80 CRI. PROVIDE SUSPENSION KITS, PRE-INSTALLED LINKING BRACKETS AS REQUIRED TO REPLACE EXISTING FIXTURE AT SAME LOCATION.	WESTGATE	SCLP-UD-4FT-60W-35K-D	LED	LED DIMMING DRIVER	0-10V	120	151LF	PENDANT	PLANETARIUM CLASSROOMS

LIGHTING NOTES:

- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHTING FIXTURES. CONTRACTOR SHALL VERIFY CEILING TYPE COMPATIBILITY WITH LIGHTING FIXTURES PRIOR TO ORDERING. VERIFY COLOR AND TRIMS REQUIRED WITH ARCHITECT PRIOR TO ORDERING.
- ALL LIGHTING FIXTURES SHALL BE SUPPLIED WITH THE MOUNTING ACCESSORIES, TRIMS AND/OR SHROUDS NECESSARY TO PROPERLY AND COMPLETELY INSTALL THE FIXTURES IN THE TYPE OF CEILING SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. CONTRACTOR SHALL VERIFY WITH ARCHITECT THE COLOR AND FINISH OF FIXTURES TO THE CLOSEST STANDARD COLOR AND FINISH BEFORE ORDERING.
- FIXTURES INSTALLED IN FIRE RATED CEILINGS SHALL BE INSTALLED IN AN APPROVED FIRE RESISTIVE MANNER CONSISTENT WITH RATING OF CEILING.
- ALL LUMINAIRES, EXCEPT THOSE LOCATED IN MECHANICAL AND ELECTRICAL ROOM, ARE CONTROLLED BY THE AREA OCCUPANCY SENSOR. WIRE TO OCCUPANCY SENSOR THAN TO SWITCH. MANUAL ON AUTOMATIC OFF. SELECT THE TYPE OF OCCUPANCY SENSOR PER MANUFACTURER RECOMMENDATION TO AVOID NUISANCE TRIPPING AND ACTIVATION.
- COORDINATE LIGHTING CONTROLS AND PROVIDE AS REQUIRED BY MANUFACTURER. PROVIDE ALL NECESSARY APPURTENANCES INCLUDING BUT NOT LIMITED TO POWER SUPPLIES, DRIVERS, ADAPTERS, JUNCTION BOXES, WIRES AND CONDUITS TO ACHIEVE A COMPLETE WORKING SYSTEM.

4

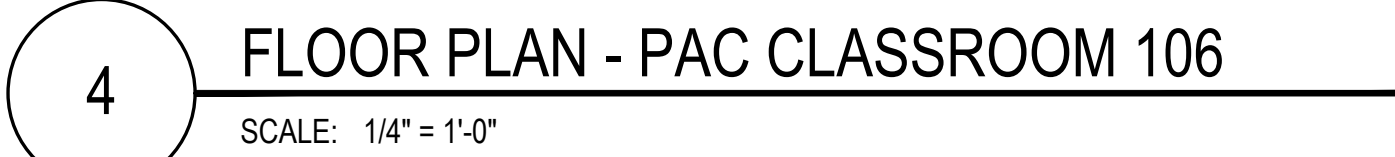
LIGHTING FIXTURE SCHEDULE

SCALE: NONE

NAME:		(E)PANEL 107	VOLTAGE:		120/ 208	BUS SIZE:		225 A	MIN. AIC :		10,000		
MOUNT:		SURFACE	PHASE/WIRE:		3PH 4W	MAIN:		100 A	SERVED FROM:		MSB		
CKT NO.	BKR/ POLE	DESCRIPTION	ΦA	ΦB	ΦC	R	L/C	M	N	K	DESCRIPTION	BKR/ POLE	CKT NO.
1	20/1	FIRE ALARM B-P	0.50				0.50				DATA ROOM LIGHT	20/1	2
			0.20				0.20						
3	20/1	HAND DRYER 121		1.44					1.44		UPS	20/1	4
				1.00			1.00						
5	20/1	RESTRM OUTLETS			0.36	0.36		0.50			DATA ROOM EF	20/1	6
					0.50								
7	20/1	RESTRM 121,2,3,4 LGT	0.50				0.50				OUTSIDE LTS POSTS	20/1	8
			0.10				0.10						
9	20/1	RESTRM 121,122 HEAT		1.50					1.50		OUTSIDE LTS POSTS	20/1	10
				0.10			0.10						
11	20/1	RESTRM 121,2,3,4 OUT			0.72	0.72					RESTRM OUTLETS	20/1	12
					0.36	0.36							
13	20/1	RESTRM 121,124 HEAT	1.50						1.50		RESTRM EF	20/1	14
			0.50					0.50					
15	20/1	LIGHTING CONTROL		0.10			0.10				RESTRM OUTLETS	20/1	16
				0.36			0.36						
17	20/1	EMERGENCY BATT			1.00	1.00					NCR TCP PANEL	20/1	18
					1.00	1.00							
19	20/1	OUTSIDE RESTRM LT	0.10				0.10				(N)PAC 101 RECEP	(N)20/1	20
			0.90				0.90						
21	20/1	EXISTING		1.00			1.00				(N)PAC 101 RECEP	(N)20/1	22
				0.90			0.90						
23	(N)20/1	(N)PAC 102 RECEP			0.90	0.90					(N)PAC 106 RECEP	(N)20/1	24
					0.72	0.72							
25	(N)20/1	(N)PAC 102 RECEP	0.90				0.90				(N)PAC 106 RECEP	(N)20/1	26
			0.72				0.72						
27	(N)20/1	SPARE		0.00							(N)PAC 106 RECEP	(N)20/1	28
				0.54			0.54						
29					0.00								30
					0.00								
CONNECTED LOAD SUBTOTALS			6	7	6	7.4	5.6	1.0	4.4	0.0			
CONNECTED LOAD (KVA)			18.4										
CONNECTED LOAD (AMPS):			51.13										
DEMAND LOAD (AMPS):			56.06										
</													

NAME:		(E)PANEL C-2	VOLTAGE:		120/ 208	BUS SIZE:		225 A	MIN. AIC :		10,000				
MOUNT:		SURFACE	PHASE/WIRE:		3PH 4W	MAIN:		225 A	SERVED FROM:		PNL C				
CKT NO.	BKR/ POLE	DESCRIPTION	ΦA	ΦB	ΦC	R	L/C	M	N	K	DESCRIPTION	BKR/ POLE	CKT NO.		
43	20/1	COURTYARD RECEP	0.72			0.72					WATER HEATER JAN	30/2	44		
			2.50							2.50					
45	20/1	SIGNAL RM RECEP				1.08		1.08							46
						2.50					2.50				
47	20/1	ELEC RM RECEP					0.54	0.54					WATER HEATER JAN	30/2	48
							2.50				2.50				
49	20/1	FIRE SMOKE DAMPER	0.10								0.10				50
			2.50								2.50				
51	20/1	TEMP CONTROL PNL				0.10			0.10				TIME CLOCK B	20/1	52
						0.10			0.10						
53	20/1	FA PADS PNL			0.20				0.20		EXISTING	20/1	54		
					1.00		1.00								
55	20/1	FA PADS PNL	0.20						0.20		EXISTING	20/1	56		
			1.00				1.00								
57	20/1	FA PADS PNL		0.20					0.20		EXISTING	20/1	58		
				1.00			1.00								
59	20/1	FA PADS PNL			0.20				0.20		EXISTING	20/1	60		
					1.00		1.00								
61	20/1	EXISTING	1.00				1.00				EXISTING	20/1	62		
			1.00				1.00								
63	(N)20/1	(N)RM 102 RECEP		0.54		0.54					IDF L6-30R	30/2	64		
				2.50					2.50						
65	(N)20/1	(N)RM 102 RECEP			0.72	0.72							66		
					2.50				2.50						
67	(N)20/1	(N)RM 102 RECEP	0.72			0.72					(N)RM 103 RECEP	(N)20/1	68		
			0.54			0.54									
69	(N)20/1	(N)RM 103 RECEP		0.72		0.72					(N)RM 103 RECEP	(N)20/1	70		
				0.54		0.54									
71	(N)20/1	(N)RM 103 RECEP			1.08	1.08					(N)RM 103 RECEP	(N)20/1	72		
					0.54	0.54									
73	(N)20/1	(N)RM 103 RECEP	0.54			0.54					(N)LOBBY RECEP	(N)20/1	74		
			0.72			0.72									
75	(N)20/1	(N)RM 103 PRINTER		1.00					1.00		(N)RM 102 SCANNER	(N)20/1	76		
				1.00					1.00						
77	(N)20/1	(N)RM 103 SCANNER			1.00				1.00		(E) SPACE		78		
					0.00										
79		(E) SPACE	0.00								(E) SPACE		80		
			0.00												
81		(E) SPACE		0.00							DO NOT REMOVE				
				0.00											
		DO NOT REMOVE			0.00						DO NOT REMOVE				
					0.00										
CONNECTED LOAD SUBTOTALS			12	11	11	9.0	6.2	0.0	18.9	0.0					
CONNECTED LOAD (KVA)			34.1												
CONNECTED LOAD (AMPS):			94.65									65% OF CONNECTED	0.0 KVA		
DEMAND LOAD (AMPS):			98.96									100% OF CONNECTED	18.9 KVA		
												CONNECTED + 25% LARGEST	0.0 KVA		
												125% OF CONNECTED	7.8 KVA		
												FIRST 10KVA + 50% REMAINDER	9 KVA		
												TOTAL CALCULATED DEMAND LOAD PER NEC	35.7 KVA		

1. ALL OUTLETS ARE FED FROM (E)PNL 107 LOCATED DATA ROOM 111.
2. CONNECT DATA OUTLETS TO NETWORK SWITCHES LOCATED IN DATA ROOM 111. COORDINATE WITH CAMPUS IT DEPARTMENT.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT OF ALL DEVICES.
4. DRAWINGS ARE BASED ON BEST INFORMATION AVAILABLE FOR EXISTING CONDITIONS. VERIFY ALL CONDITIONS IN FIELD AND REPORT ANY INCONSISTENCIES.
5. DEVICES REQUIRING REACH OVER OBSTRUCTION SHALL BE PLACED AT MAX. 44" AFF TO TOP OF BOX. DEVICE BOXES FOR OUTLETS AND SWITCHES SHALL BE PLACED AT MAX. 48" AFF TO TOP OF BOX AND MIN. 15" AFF TO BOTTOM OF BOX. ALL OUTLETS SHALL BE WITHIN WHEELCHAIR REACH.
6. ALL SWITCHES AND ENVIRONMENTAL CONTROLS SHALL NOT REQUIRE GRASPING OR TWISTING TO OPERATE.
7. FIELD VERIFY ELECTRICAL SYSTEM PRIOR TO DEMOLITION TO AVOID ACCIDENTAL DEMOLITION OF DEVICES NOT UNDER SCOPE OF WORK AS AREAS ARE EXISTING TO REMAIN.
8. REPLACE LIGHT FIXTURES AT THEIR SAME LOCATION. SAVE (E) CIRCUIT FOR REUSE. FIELD VERIFY EXISTING CIRCUIT PRIOR TO ANY WORK BEING DONE.
9. WHERE MAINTAINING AN (E) FEEDER IS NOT POSSIBLE DUE TO DEMOLITION, INFORM THE ARCHITECT VIA RFI TO COORDINATE POWER RELOCATION.



NOT FOR CONSTRUCTION

[illegible]

DO NOT SCALE DRAWING. ALL MARKED DIMENSIONS TAKE PRECEDENT ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY CONTRACTOR PRIOR TO EXECUTION OF WORKS.

PROJECT LOCATION:
DIABLO VALLEY COLLEGE, 321 GOLF CLUB RD,
PLEASANT HILL, CA 94523

PROJECT TITLE: ELECTRICAL -
PAC FLOOR PLANS

DRAWING TITLE:

CLIENT PROJECT NO:	SCALE: 1/4" = 1'-0"
ENGINEER:	CLIENT - DWG. FILE NO:
DRAWN BY:	SHEET NO.
DATE:	E2 1

E2.1



1. ALL OUTLETS ARE FED FROM (E)NPL C-2 LOCATED CLASSROOM 1.
2. CONNECT DATA OUTLETS TO NETWORK SWITCHES. COORDINATE WITH CAMPUS IT DEPARTMENT.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT OF ALL DEVICES.
4. DRAWINGS ARE BASED ON BEST INFORMATION AVAILABLE FOR EXISTING CONDITIONS. VERIFY ALL CONDITIONS IN FIELD AND REPORT ANY INCONSISTENCIES.
5. DEVICES REQUIRING REACH OVER OBSTRUCTION SHALL BE PLACED AT MAX. 44" AFF TO TOP OF BOX. DEVICES BOXES FOR OUTLETS AND SWITCHES SHALL BE PLACED AT MAX. 48" AFF TO TOP OF BOX AND MIN 15" AFF TO BOTTOM OF BOX. ALL OUTLETS SHALL BE WITHIN WHEELCHAIR REACH.
6. ALL SWITCHES AND ENVIRONMENTAL CONTROLS SHALL NOT REQUIRE GRASPING OR TWISTING TO OPERATE.
7. FIELD VERIFY ELECTRICAL SYSTEM PRIOR TO DEMOLITION TO AVOID ACCIDENTAL DEMOLITION OF DEVICES NOT UNDER SCOPE OF WORK AS AREAS ARE EXISTING TO REMAIN.
8. REPLACE LIGHT FIXTURES AT THEIR SAME LOCATION SAVE (E) CIRCUIT FOR REUSE. FIELD VERIFY EXISTING CIRCUIT PRIOR TO ANY WORK BEING DONE.
9. WHERE MAINTAINING AN (E) FEEDER IS NOT POSSIBLE DUE TO DEMOLITION, INFORM THE ARCHITECT VIA RFi TO COORDINATE POWER RELOCATION.

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[illegible]

DO NOT SCALE DRAWING. ALL MARKED DIMENSIONS TAKE
PRECEDENT ALL DIMENSIONS TO BE VERIFIED IN THE
FIELD BY CONTRACTOR PRIOR TO EXECUTION OF WORKS

PROJECT LOCATION:
DIABLO VALLEY COLLEGE, 321 GOLF CLUB RD,
PLEASANT HILL, CA 94523

PROJECT TITLE: ELECTRICAL -
PLANETARIUM FLOOR PLAN

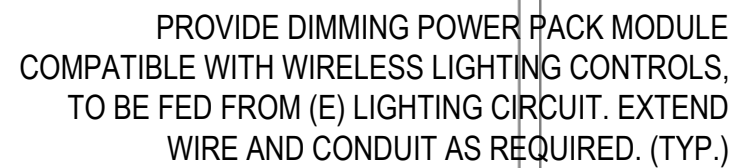
DRAWING TITLE:

CLIENT PROJECT NO:	SCALE: 1/4" = 1'-0"
ENGINEER:	CLIENT - DWG. FILE NO:
DRAWN BY:	SHEET NO.
DATE:	E2 2

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6. REPLACE LIGHT FIXTURES AT THEIR SAME LOCATION. SAVE (E) CIRCUIT FOR REUSE. FIELD VERIFY EXISTING CIRCUIT PRIOR TO ANY WORK BEING DONE.
7. WHERE MAINTAINING AN (E) FEEDER IS NOT POSSIBLE DUE TO DEMOLITION, INFORM THE ARCHITECT VIA RFI TO COORDINATE POWER RELOCATION.
8. CONTRACTOR TO SAVE THE LENSES OF EXISTING FIXTURES TO BE REMOVED FOR M&O TO STOCKPILE.
9. (N) LIGHTING CONTROLS SHALL BE COMPATIBLE WITH (E) WIRELESS OCCUPANCY SENSOR IN ROOM. REFER TO DETAIL 3/00.02 FOR WIRING DIAGRAM.

E3.1

NOT FOR CONSTRUCTION



SCALE: 1/4" = 1'-0"

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