JIM FUENTES, SUPERVISOR, HVAC AND ELECTRICAL - GENERAL SERVICE DEMPARTMENT

# BUILDING & SAFETY HVAC SPLIT SYSTEM AND ROOF TOP UNIT REPLACEMENT

3031 TORRANCE BOULEVARD TORRANCE, CA. 90503

TIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) NOTES	GENERAL NOTES
IN THE CASE OF EMERGENCY, CALL, BLAIR FICKETT AT WORK PHONE #-562-301-4644. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TACKING, OR WIND. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OR THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TPASH OF BERCY.	<ol> <li>PROVIDE SHOP DRAWINGS PRIOR TO BEING SUBMITTE</li> <li>PROVIDE COMPLETE AND F</li> <li>COORDINATE THE INSTALL WORK, THE CONTRACTOR CODES AND GOVERNING D CONTRACT DOCUMENTS F WORK. THE CONTRACTOR WORK INSTALLED, PRIOR T THE CONTRACT DOCUMEN</li> <li>SYMBOLS SHOWN ON THE REVIEW DRAWINGS TO DET</li> <li>CONTRACTOR SHALL EMPL</li> </ol>
Involvent of the bind.	<ul> <li>FREE OF DUST, DIRT AND D WITH VISQUINE IN ANY ARE INCLUDING THE PREPARAT OR ANY OTHER SIMILAR AG HANDLING UNITS AND FAN DIFFUSERS AND DUCT OPE WITH VISQUINE TO PREVEN</li> <li>6. PROVIDE ALL CORING, TRE PROJECT.</li> <li>7. COORDINATE LOCATIONS O PRIOR TO INSTALLATION.</li> <li>8. PROVIDE SUPPORT STEEL, WITH THE MANUFACTURER ELECTRICAL CONDUIT. UNI THE BUILDING STRUCTURE EACH OTHER.</li> <li>9. PERFORM WORK IN ACCOR AS REQUIRED BY THE LOCATIONS</li> </ul>
THE PERMITTEE AND CONTRACTORS SHALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS. THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.	<ol> <li>PROVIDE CODE APPROVED ACHIEVE FIRE, SMOKE, ANI</li> <li>REPAIR ANY DAMAGE TO FI</li> <li>INSTALL EQUIPMENT IN ACC</li> <li>PROVIDE EQUIPMENT SUIT.</li> <li>PERFORM SYSTEM COMMIS REQUIRED BY THE DOCUM THE EQUIPMENT MANUFAC</li> <li>UPON COMPLETION OF TES AFTER VERIFYING THE PR THE OWNERS REPRESENT. OWNER.</li> <li>PROVIDE O &amp; M MANUALS /</li> <li>PROVIDE TRAINING FOR OV</li> </ol>

# CITY OF TORRANCE

	SCOPE OF V	VORK	CONSULTANT
<ul> <li>D EQUIPMENT SUBMITTALS TO THE OWNER'S REPRESENTATIVE FOR REVIEW</li> <li>D THE PROJECT ENGINEER.</li> <li>PERLY FUNCTIONING CONTROL SYSTEM FOR THIS PROJECT.</li> <li>IN OF THE WORK OF ALL REQUIRED TRADES. IF DURING THE COURSE OF THE ERIENCES A PROBLEM RELATIVE TO THE DOCUMENTS, THE LOCAL APPLICABLE MENTS, OR THE WORK CANNOT BE INSTALLED IN ACCORDANCE WITH THE ANY REASON, NOTIFY ENGINEER FOR DIRECTION PRIOR TO EXECUTION OF THIS 'E RESPONSIBLE FOR REMOVING, AT NO ADDITIONAL COMPENSATION, ANY 'ECIVING DIRECTION FROM THE OWNER'S REPRESENTATIVE, IN VIOLATION OF RAPPLICABLE CODES.</li> <li>WINGS AND IN THE SCHEDULES INDICATE THE TYPE OF EQUIPMENT ONLY.</li> <li>MINE THE EXACT QUANTITIES REQUIRED FOR EACH EQUIPMENT TYPE.</li> <li>CLEAN CONSTRUCTION'' METHODS TO KEEP THE WORK AREA AND SYSTEMS 'IS. DUCT OPENINGS, DIFFUSERS, GRILLES AND REGISTERS SHALL BE SEALED F THE PROJECT WHERE DUST GENERATING CONSTRUCTION ACTIVITIES OCCUR, OF WALL BOARD, PREPARATION, GRINDING OR FINISHING OF CONCRETE WORK ITY. IF SIMILAR REWORK OF A PREVIOUSLY FINISHED AREA IS REQUIRED, AIR 'S SERVING THAT AREA SHALL BE SHUT DOWN, AND ALL GRILLES, REGISTERS,</li> </ul>	THE SCOPE AND STRUCT 1. DEMOLIS ROOFTC 2. REMOVE UNIT. 3. INSTALL LOCATIC 4. INSTALL 5. REPLAC	OF WORK OF THIS PROJECT COMPRISES OF THE MECHANICAL, ELECTRICAL, PLUMBING TURAL WORK TO ACCOMPLISH OF THE FOLLOWING: SH ONE SPLIT SYSTEM HEAT PUMP(3 TON COOLING CAPACITY) AND ONE PACKAGED OP HEAT PUMP (5 TON COOLING CAPACITY). E EXISTING REFRIGERANT PIPING CONNECTING THE OUTDOOR UNIT WITH THE INDOOR ONE NEW SPLIT SYSTEM HEAT PUMP WITH SAME CAPACITY ON THE ORIGINAL ON. INSTALL NEW REFRIGERANT PIPING CONNECTING THE INDOOR AND OUTDOOR UNITS. ONE NEW PACKAGED HEAT PUMP WITH SAME CAPACITY ON THE ORIGINAL ROOF NEW PACKAGED HEAT PUMP WITH SAME CAPACITY ON THE ORIGINAL ROOF CURB. E THERMOSTAT WITH NEW THERMOSTAT.	IDS MECHA 1 PETERS C IRVINE. CA. PHONE: FAX: ENGINEER MECHANIC/ ELECTRICA STRUCTUR PROJECT M
GS IN THAT AREA, WHETHER ABOVE OR BELOW THE CEILING, SHALL BE SEALED FILTRATION OF DUST, DIRT AND DEBRIS INTO THE AIR DISTRIBUTION SYSTEM. ING, CUTTING AND PATCHING AS REQUIRED TO PERFORM THE WORK FOR THIS			-
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ENSORS AND OTHER DEVICES WITH ENGINEER AND OWNER'S REPRESENTATIVE IGERS AND ACCESSORIES REQUIRED TO INSTALL EQUIPMENT IN ACCORDANCE ECOMMENDATIONS. DO NOT SUPPORT DEVICES FROM DUCTWORK, PIPES, OR 5 OTHERWISE NOTED, DO NOT ALLOW PIPES OR CONDUIT TO DIRECTLY CONTACT ILING SYSTEM, LIGHT FIXTURES, ANY OTHER BUILDING SYSTEM COMPONENT, OR	AS APPLICAB FOLLOWIN 2016 CALI 2016 CALI	LE TO THE SCOPE OF WORK. NEW WORK TO BE PERFORMED IN ACCORDANCE WITH THE GS: FORNIA BUILDING CODE, VOLUMES 1 AND 2 FORNIA ELECTRICAL CODE	<b>- 1977</b> (214) (2003)
ICE WITH ALL CURRENT AND APPLICABLE LOCAL CODES AND REGULATIONS AND UTHORITY HAVING JURISDICTION (AHJ).	<ul> <li>2016 CALIF</li> <li>2016 CALIF</li> </ul>	FORNIA MECHANICAL CODE	
E STOPPING AT PENETRATIONS THROUGH BUILDING CONSTRUCTION TO UND RATINGS AS REQUIRED.	<ul> <li>2016 CALIF</li> <li>2016 CALIF</li> </ul>	FORNIA EXISTING BUILDING CODE	
ROOFING DUE TO INSTALLATION OF THIS WORK.			
DANCE WITH THE MANUFACTURERS RECOMMENDATIONS.		A <del>T</del> A	
	BUILDING DA		
NING, CLEANING, SERVICING, BALANCING, TESTING, AND CERTIFICATION S, CODE, LOCAL AUTHORITY HAVING JURISDICTION, AND AS RECOMMENDED BY ERS, PRIOR TO OCCUPANCY.			
G, OPERATE EQUIPMENT TO VERIFY THAT ALL SYSTEMS FUNCTION PROPERLY. R OPERATION, DEMONSTRATE THE OPERATION OF SYSTEMS AND EQUIPMENT TO ES. PROVIDE 48 HOURS NOTICE AND SCHEDULE THE DEMONSTRATION WITH THE		IDEX	
ESCRIBED IN SPECIFICATIONS.			
R'S MAINTENANCE AND ENGINEERING STAFF AS DESCRIBED IN SPECIFICATIONS.			A A TRA
	SHEET NUMBERS	SHEET TITLE	
	T-1	TITLE SHEET	Torrence Blvg
	M0.1	MECHANICAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES	
	M0.2	MECHANICAL SCHEDULES	tee Blva Torrance
	M2.1	MECHANICAL DEMOLITION & RENOVATION FLOOR PLANS	
	M2.2	COMPUTER ROOM - MECHANICAL RENOVATION FLOOR PLAN	
	M3.1	MECHANICAL DEMOLITION ROOF PLAN	BUILDI
	M3.2	MECHANICAL RENOVATION ROOF PLAN	3031 1
	M4.1	MECHANICAL DETAILS	
	E0.1	ELECTRICAL GENERAL NOTES	
	E2.0	ELECTRICAL DETAILS	



#### **GENERAL ELECTRICAL NOTES** ELECTRICAL SPECIFICATIONS PART I - GENERAL 1. ALL SYMBOLS ARE NOT NECESSARILY USED IN THIS PROJECT. A. CONDITIONS 2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF OUALITY. THE ENGINEER RESERVES THE RIGHT TO ALLOW OTHER METHODS AND MATERIALS NOT REFLECTED HEREIN. FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL THE CONTRACTOR SHALL BE RESPONSIBLE TO REQUEST THE ENGINEER WAIVE THE STANDARDS TO ALLOW SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT ALTERNATE MEANS AND METHODS PRIOR TO BEGINNING THE PROJECT. CONTRACT DOCUMENT REVISIONS NOT LIMITED TO. THESE MAJOR ITEMS. TO ACCOMMODATE INSTALLED CONDITIONS, WITHOUT PRIOR APPROVAL, WILL RESULT IN ADDITIONAL DESIGN CHARGES TO THE CONTRACTOR. A. LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS. 3. ELECTRICAL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE NECA B. ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND INSTALLATION STANDARDS TO THE SATISFACTION OF THE OWNER AND ENGINEER. EQUIPMENT C. TELEPHONE OUTLETS AND CONDUIT AS INDICATED. 4. ALL WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE CURRENTLY ACCEPTED EDITION OF ALL APPLICABLE NATIONAL, STATE AND CITY CODES AND ORDINANCES. B. CODES, REGULATIONS, AND STANDARDS 5. ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE LISTED OR LABELED BY UL OR OTHER RECOGNIZED TESTING FACILITY AS ALLOWED BY AUTHORITY HAVING JURISDICTION. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES 6 WHERE AN APPARENT DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF THE GENERAL NOTES AND AND ORDINANCES, WITH THE REGULATIONS OF THE CURRENTLY ACCEPTED EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE INFORMATION PORTRAYED IN THE ELECTRICAL DRAWINGS, THE CONTRACTOR SHALL INCLUDE IN HIS COST POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS OF THE GREATER QUALITY OR QUANTITY. INSTALLATION. 7 ALL FLECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION, IF TESTS SHOW THAT WORK IS THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE DEFECTIVE, CONTRACTOR SHALL MAKE ALL NECESSARY CORRECTIONS. MINIMUM REQUIREMENTS: 8. CONTRACTOR SHALL GUARANTEE ALL WORK AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. ALL DEFECTS THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION STANDARDS. SHALL BE PROMPTLY CORRECTED BY CONTRACTOR. B. THE NATIONAL ELECTRICAL CODE. INCLUDING LOCAL AMENDMENTS. UNDERWRITER LABORATORIES INCORPORATED STANDARDS. 9. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE AMERICAN NATIONAL STANDARDS INSTITUTE. PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS **CLINSPECTION OF SITE** 10. DO NOT SCALE ELECTRICAL DRAWINGS. VERIFY EXACT LOCATION OF ALL DEVICES, JUNCTION BOXES, LIGHTING FIXTURES, ETC. WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS PRIOR TO PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL INSTALLATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT AND VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ROUGH-IN. EVERY OUTLET HEIGHT ACQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE SHALL BE VERIFIED ON EACH WALL WITH THE INTERIOR PLANNING AND DESIGN DRAWINGS. COORDINATE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH WITH CABINET SHOP DRAWINGS TO ENSURE PROPER HEIGHT AND LOCATION WITH RESPECT TO THIS CONDITION AFTER BIDDING MILLWORK, EQUIPMENT, ETC. 11 THESE DRAWINGS INDICATE THE FINISHED REQUIREMENTS FOR THE FLECTRICAL SYSTEMS. FOUIPMENT ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS. LIGHTING FIXTURES, OUTLETS AND DEVICES. DUE TO STRUCTURAL CONDITIONS, MECHANICAL DUCT, PIPING CONFLICTS. OR OTHER LEGITIMATE REASONS. THE CONTRACTOR MAY DESIRE TO INSTALL THE D. STORAGE AND HANDLING OF MATERIAL WORK INDICATED IN A MANNER DIFFERENT FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PROCEEDING. UPON APPROVAL, THE WORK SHALL DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S BE PERFORMED AND THE AS-BUILT DRAWINGS SHALL BE REVISED TO ACCURATELY REFLECT THE WORK AS ORIGINAL UNOPENED LABELED CONTAINERS PROTECT AGAINST MOISTURE ACTUALLY INSTALLED. TAMPERING OR DAMAGE FROM IMPROPER HANDLING OR STORAGE CONTRACTOR 12. RACEWAY SYSTEMS ARE SHOWN DIAGRAMMATICALLY. ACTUAL LOCATION AND ROUTING OF ALL, SHALL BE SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS DETERMINED BY CONTRACTOR TO SUIT FIELD CONDITIONS UNTIL FINAL ACCEPTANCE BY THE OWNER AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER. ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD. 13. PROVIDE DEDICATED NEUTRAL FOR EACH NEW CIRCUIT, HOME RUN CONDUCTORS MAY BE COMBINED INTO ONE CONDUIT. NO RACEWAY OR CABLE SHALL CONTAIN MORE THAN NINE (9) CURRENT CARRYING ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE CONDUCTORS. WHERE MULTIPLE CONDUCTORS IN EXCESS OF THREE (3) ARE INDICATED ON THESE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND DRAWINGS, THEY HAVE BEEN DERATED AS REQUIRED BY NEC ARTICLE 310 REQUIREMENTS. INSTALLATION. 14. WHERE ALLOWED, MC CABLE MAY BE INSTALLED PER NEC ARTICLE 330. WHERE MULTIPLE CABLES ARE COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER ROUTED ADJACENT TO EACH OTHER (BUNDLED), A MINIMUM SEPARATION OF ONE (1) CABLE DIAMETER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND (LARGEST) SHALL BE REQUIRED. DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER 15. PLASTIC CABLE TIES SHALL NOT BE USED AS A MEANS OF SUPPORT FOR MC CABLE. USE ONLY APPROVED CABLE SUPPORTS PER CABLE MANUFACTURER'S INSTALLATION REQUIREMENTS E. CLEANUP 16. RACEWAYS SHALL BE INSTALLED CONCEALED WHENEVER POSSIBLE. RACEWAYS INSTALLED EXPOSED SHALL BE ROUTED OUT OF PUBLIC VIEW. RACEWAYS SHALL BE RUN PARALLEL WITH, OR AT RIGHT ANGLE TO E. WIRES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE 17. PROVIDE APPROVED EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS. SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS PROVIDE BONDING JUMPER(S) SIZED PER CODE WHERE REQUIRED. PROVIDE ALL FITTINGS REQUIRED FOR A MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN. COMPLETE INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR EXPANSION JOINT LOCATION(S). F. DRAWINGS 18. MINIMUM RACEWAY SIZE SHALL BE 1/2". MINIMUM HOMERUN SIZE SHALL BE 3/4". MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG U.N.O. TYPICAL. ALL POWER RELATED CONDUITS SHALL HAVE A CODE THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE SIZE GROUND WIRE INSTALLED IN EACH RUN. ELECTRICAL WORK DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS 19. CONTRACTOR SHALL PROVIDE PULL CORDS IN ALL EMPTY CONDUITS, WHERE MORE THAN ONE CONDUIT PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS TERMINATES IN A JUNCTION BOX. THE CONTRACTOR SHALL IDENTIFY EACH CONDUIT AND JUNCTION BOX LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL IN A MANNER ALLOWING IDENTIFICATION AFTER ALL WALL FINISHES HAVE BEEN APPLIED. ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WHITE, 277V- GRAY, AND LIVE WIRES 208Y/120V AND 120/240 SHALL BE BLACK WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE 20. CONTRACTOR SHALL PROVIDE ALL RACEWAY SYSTEMS INDICATED ON THE DRAWING PER NEC ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER REQUIREMENTS AND GENERAL NOTES. ANY DEVIATION FROM THE WIRING METHODS INDICATED SHALL BE ALLOWED ONLY BY SPECIFIC WRITTEN APPROVAL FROM THE ENGINEER OR OWNER. CONTRACTOR SHALL DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN INCLUDE ALL COSTS FOR RACEWAY SYSTEMS AS SPECIFIED UNLESS SPECIFIC WRITTEN APPROVAL FOR AN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE ALTERNATIVE WIRING METHOD IS OBTAINED FROM EITHER THE ENGINEER OR OWNER. INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT 21. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECT SIZE AND INSTALLATION OF ALL OUTLET, PULL AND REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER JUNCTION BOXES IN ACCORDANCE WITH NEC 314-16. ALL BOXES SHALL BE MINIMUM 4" SQUARE BY 1-1/2" QUALITY. AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT DEEP OR AS INDICATED ON THE DRAWINGS. ALL BOXES SHALL BE RECESSED WITH COVER PLATE TO SUIT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM THE INTENDED APPLICATION. MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT 22. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN(S) FOR EXACT LOCATION OF ALL CEILING TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL MOUNTED LIGHTING FIXTURES. ARCHITECTURAL DRAWINGS SHALL GOVERN IN CASE OF CONFLICT WITH DRAWINGS, USE ACTUAL BUILDING DIMENSIONS THESE DRAWINGS 23. PRIOR TO INSTALLATION, CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION G. EXCAVATION, CUTTING, AND FITTING DOCUMENTS FOR CONFLICTS WITH OTHER TRADES. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE PERFORM THE EXCAVATION. CUTTING. FITTING. REPAIRING. AND FINISHING OF THE ALL WORK WITH OTHER TRADES TO AVOID CONFLICT DURING INSTALLATION. CONTRACTOR SHALL MAKE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. MINOR ADJUSTMENTS IN EQUIPMENT LOCATION AND ROUTING AS NECESSARY HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL 24. CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY CUT AND PATCH EXISTING CONSTRUCTION AS MEMBERS SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT REQUIRED TO INSTALL NEW ELECTRICAL WORK ALL PATCHING SHALL BE OF THE SAME MATERIALS WORKMANSHIP AND FINISH AS THE EXISTING WORK AND SHALL ACCURATELY MATCH ALL SURROUNDING H. COOPERATION WITH OTHER CONTRACTORS WORK. OOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE QUANTITY AND SIZE OF CONDUCTORS REQUIRED. CONTRACTORS SHALL PROVIDE EQUIPMENT WITH FLECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED OVERSIZED ENCLOSURES WHERE REQUIRED CONDUIT LIGHTING FIXTURES AND OTHER FOUIPMENT LOCATIONS SHALL BE CHECKED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, 26. ALL NEW PANEL BOARDS AND SWITCHBOARDS SHALL BE OF THE SAME MANUFACTURER AND HAVE STEEL, BEAMS, OR OTHER OBSTRUCTIONS. LOCKING DOORS AND BE KEYED THE SAME U.N.O. CAREFULLY CHECK THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT 27. PROVIDE TYPE WRITTEN UPDATED PANEL DIRECTORY WHICH IS TO BE MOUNTED ON INSIDE OF ALL PANEL THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF G. LIGHTING FIXTURES DOOR COVERS. DIRECTORY SHALL REFLECT ALL ADDITIONS OR MODIFICATIONS TO EXISTING PANELS AND OTHER TRADES. SHALL REFLECT ACTUAL "AS-BUILT" CONDITIONS. COORDINATE HVAC EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC 28. VERIFY DEVICE COLOR AND MOUNTING ORIENTATION (VERTICAL OR HORIZONTAL) WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS PRIOR TO ORDERING ANY EQUIPMENT AND PROVIDE DEVICES AS CONTRACTOR. REQUIRED. UNLESS NOTED OTHERWISE, DEVICES AND DEVICE PLATES SHALL BE WHITE IN COLOR 29. WHERE MOTORS ARE INSTALLED IN SUSPENDED CEILINGS, CONTRACTOR SHALL PROVIDE DISCONNECT PART II - PRODUCTS AND EXECUTION SWITCH IN SUSPENDED CEILING WITHIN REACH FROM ACCESS POINT 30. SIZING OF MOTOR-RELATED ELECTRICAL COMPONENTS, INCLUDING FEEDER AND/ OR BRANCH CIRCUITS A.\_MATERIALS (WIRE AND CONDUIT) AND OVERCURRENT PROTECTION (BREAKER AND/ OR FUSES) IS BASED ON RATINGS INDICATED IN THE CONTRACT DOCUMENTS AS WELL AS NEC APPROXIMATED LOADS FOR A GIVEN MOTOR ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR HORSEPOWER, VOLTAGE AND PHASE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL MOTOR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES AND APPLIANCE RATING AND LOADS. CONTRACTOR TO PROVIDE CORRECTLY SIZED MOTOR OVERLOAD APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO ELECTRICAL COMPONENTS BASED ON NAMEPLATE RATING. REFLECT ALL CHANGES IN THE AS-BUILT MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND DRAWINGS REGULATIONS. 31. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW OF THE FOLLOWING SPECIFIED B. CONDUIT NEW EQUIPMENT WHERE INDICATED ON PLANS: ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS a. ELECTRICAL SWITCHGEAR: SWITCHBOARDS, WITH PANELS, MOTOR CONTROL CENTERS AND SAFETY PERMITTED BELOW RGS WITH A 20 MIL PVC COATING WILL BE USED WHEN IN DEVICES. CONTACT WITH EARTH. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT b. OVERCURRENT DEVICES: CIRCUIT BREAKERS AND FUSES INCLUDING TIME/CURRENT TRIP CURVES. WITH THE EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH $^-$ EARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC c. LIGHTING FIXTURES: INDOOR/OUTDOOR AS SPECIFIED. PHOTOMETRIC PERFORMANCE DATA AND MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE LAMPS. STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LENGTHS NOT TO EXCEED 72". LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE d. DEVICES: SWITCHES, RECEPTACLES, MOTOR CONTROLLERS AND DEVICE PLATES. FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 36". e. LIFE SAFTY/FIRE ALARM SYSTEM: CONTROL PANEL, ANNUNCIATOR PANEL, INITIATION AND NOTIFICATION DEVICES/APPLIANCES, SYSTEM WIRING REQUIREMENTS AND DIAGRAM, SYSTEM LOAD WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES OR CABINETS, FIRMLY CALCS, STANDARD BATTERY CALCULATIONS, AND AUXILIARY POWER SUPPLY. FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR DOUBLE □ OCKNUTS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED 32. ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DIAGRAMS THAT CONFORM TO UL LISTING FOR "THROUGH-PENETRATION FIRE STOP THROAT CONNECTORS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION, RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES. SYSTEMS". SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT, T & B OR APPLETON, OR 33. CONTRACTOR SHALL ENGAGE THE SERVICES FOR A STATE LICENSED FIRE ALARM EQUAL). MANUFACTURER/INSTALLER TO PREPARE ALL DESIGN DRAWINGS AND CALCULATIONS REQUIRED FOR SYSTEM APPROVAL BY THE AUTHORITY HAVING JURISDICTION. SUBMIT ALL PLANS AND PROVIDE ALL COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED PERMITS REQUIRED FOR A COMPLETE AND OPERABLE APPROVED LIFE SAFETY SYSTEM. SPIRAL WRAPPED. 1/2 LAPPED TO PROVIDE 20 MIL. THICKNESS. TAPE SHALL BE 34. FIRE ALARM DEVICE WIRING SHALL BE MINIMUM #14 AWG COPPER OR PER SYSTEM MANUFACTURER SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER REQUIREMENTS. PROVIDE MINIMUM 3/4" SEPARATE RACEWAY SYSTEM OR AS REQUIRED FOR LIFE SAFETY DUCTS SHALL BE INSTALLED PER N.E.C. 300-5. MAKE JOINTS WITH COMPOUND TO SYSTEM WIRING CONFIGURATION. BE WATERTIGHT. 35. UPON COMPLETION OF THE INSTALLATION OF LIFE SAFETY SYSTEM WIRING AND DEVICES, A PERFORMANCE FITTINGS AND CONDUIT BODIES SHALL BE STEEL. NO DIECAST FITTINGS. TEST OF THE ENTIRE LIFE SAFETY SHALL BE PERFORMED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. 5. CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED. 36. ALL EQUIPMENT ELECTRICAL TERMINATIONS TO UNDERGO A TORQUE TEST, ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MANUFACTURER'S RECOMMENDED TORQUE DOCUMENTATION AND TOOLS TO ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A NYLON PULL STRING TO FACILITATE PERFORM TORQUE TEST. INSTALLATION OF FUTURE WIRE. 37. ALL UNDERGROUND SERVICE CONDUITS SHALL BE SEALED PER NEC ARTICLE 230-8. SCHEDULE 40 PVC CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER 38. FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON A 4" HIGH CONCRETE PAD. FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH 39. INSTALL TRANSFORMER FOLLOWING MANUFACTURER'S RECOMMENDATIONS FOR VENTILATION FLOOR SLABS AND BENDS GREATER THAN 22° SHALL BE WRAPPED RIGID CLEARANCES. GROUND GALVANIZED STEEL ELBOWS. 40. COORDINATE ELECTRICAL REQUIREMENTS FOR ALL PLUMBING AND MECHANICAL EQUIPMENT WITH FINAL CONDUITS AND OUTLETS SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE, CONTRACTOR SELECTION. THE CONTRACTOR SHALL SIZE DISCONNECTS BASED UPON CIRCUIT BREAKER EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN RATINGS AND PROVIDE FUSING AS REQUIRED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS AND EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS. CONDUIT SHOWN TO U.L. LISTING REQUIREMENTS. BE INSTALLED IN CABINETS, COUNTERS, AND CASEWORK SHALL BE RUN AS 41. PROVIDE 10 AWG CONDUCTORS FOR 20 AMPERE, 120V BRANCH CIRCUITS LONGER THAN 75' AND 8 AWG DIRECTED BY THE ARCHITECT. CONDUCTORS FOR 20 AMPERE, 120V BRANCH CIRCUITS LONGER THAN 120', PROVIDE 10 AWG CONDUCTORS FOR 20 AMPERE, 277V BRANCH CIRCUITS LONGER THAN 200'. ALL CONDUIT SYSTEMS SHALL HAVE A CODE SIZED COPPER GROUND CONDUCTOR.

INCREASE CONDUIT SIZE AS REQUIRED.

#### 10. CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE

WATERTIGHT 11. CONDUITS SHALL BE ROUTED SURFACE ON THE STRUCTURE, PARALLEL AND PERPENDICULAR TO THE STRUCTURE.

#### C. OUTLET, PULL, AND JUNCTION BOXES

1. EACH SWITCH, LIGHT. RECEPTACLE OR OTHER OUTLET SHALL BE PROVIDED WITH A CODE GAUGE, GALVANIZED STEEL OUTLET BOX. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE. GALVANIZED STEEL. OUTLET BOXES SHALL BE OF THE ONE PIECE, KNOCKOUT TYPE, IN GENERAL 4" SQUARE WITH PLASTER RING. PLASTER RINGS SHALL BE SET TO PROVIDE NOT MORE THAN 1/8" FROM WALL SURFACE TO RING. IN NO CASE SHALL PLASTER RING PROJECT BEYOND SURFACE OF WALL SINGLE GANG RINGS SIMILAR TO STEEL CITY 52050 SHALL BE USED FOR 4" BOXES IN UNFINISHED BRICK NUMBER 180 BOXES MAY BE USED FOR UNFINISHED MASONRY FLUSH WALL OUTLETS. CENTER ALL OUTLET BOXES IN BLOCK COURSE.

2. BOXES INSTALLED IN POURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON OR STEEL WITH WATERTIGHT GASKETED COVERS. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.

3. BOXES INSTALLED FOR THE ALARM, COMPUTER, AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVER PLATES.

4. BOXES FOR TELEPHONE, COMPUTER, T.V., FIRE ALARM, SECURITY, AND SIMILAR SYSTEMS SHALL BE MINIMUM 4" SQUARE AND 2-1/8" DEEP.

## D. PANEL BOARDS

1 CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS. UNLESS INDICATED OTHERWISE, ALL PANELS SHALL HAVE PANEL BOARD TYPE CONSTRUCTION WITH BOLT-ON CIRCUIT BREAKERS FOR 30 PANELS. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, SIEMENS, CUTLER-HAMMER OR EQUAL WITH VOLTAGE, SIZES, AND RATINGS AS INDICATED ON DRAWINGS.

2 THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANEL BOARD WITHOUT DISTURBING THE AD JACENT LINITS BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE, AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE.

HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE. 3. WIRE TERMINATION FOR PANEL BOARDS AND CIRCUIT BREAKERS SHALL BE LISTED AS SUITABLE FOR 75 DEGREES C.

4. PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED. INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL. SECURED TO DOOR.

1. CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE XHHW FOR FEEDERS OR BRANCH CIRCUITS LARGER THAN 4 AWG. TYPE THHN/THWN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER. SERVICE AND PANEL FEEDERS #1/0 AND LARGER MAY BE ALUMINUM. PROVIDED THE CONDUCTOR SIZES ARE INCREASED FOR EQUAL OR GREATER AMPACITY AND EQUAL OR LESS EQUIVALENT VOLTAGE DROP. INCREASE CONDUIT SIZE AS REQUIRED. THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE 120V-

(PHASE A), RED (PHASE B), AND BLUE (PHASE C). FOR 480Y/277V CIRCUITS, THE COLOR CODE SHALL BE BROWN (PHASE A), ORANGE (PHASE B), AND YELLOW (PHASE C). THE WIRE SHALL BE 12 AWG UNLESS OTHERWISE INDICATED. CIRCUIT SHALL BE LABELED IN EACH J-BOX. 2. ALL WIRES SHALL BE COPPER. NO ALUMINUM WIRES PERMITTED

3 NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE USE MINERALAC NO 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM. 4. ALL CONDUCTORS SHALL BE STRANDED. NO SOLID WIRES PERMITTED.

E. WIRING DEVICES WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A, -120/277 VOLT

2. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE, NEMA 5-20R, 20 AMPERE. 120 VOLT GROUNDED TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS. MOUNT WITH THE GROUND DOWN.

3. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED.

1. PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. THE LAMPS SHALL BE BY THE SAME MANUFACTURER. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. CEILING CONSTRUCTION, ARCHITECTURAL ACCESSORIES, VOLTAGE, AND BALLASTS TO MEET THE EXISTING CONDITION.

#### H. SYSTEM GROUNDING

1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDED CONDUCTORS OF THE WIRING SYSTEM SHALL BE

GROUNDED 2. GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.

3. A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL SWITCHBOARDS AND PANELBOARDS. GROUND BUS SHALL BE RETORQUED (CHECKED) PRIOR TO ENERGIZING EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.

4. GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS. SWITCHBOARDS, PANELBOARDS, AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE AND IN TRANSFORMER TERMINAL COMPARTMENTS.

5. WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE. FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED. EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FROM GROUND BUSING SHALL NOT AFFECT THE GROUND SYSTEM.

6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO INSURE A CONTINUOS GROUNDING 7. IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.

8. IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.

9. BOND TOGETHER METAL SIDING NOT ATTACHED TO GROUNDED STRUCTURE BOND TO

#### I. TELEPHONE SYSTEM

-ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. CONNECT OUTLETS TO -TELEPHONE TERMINAL WITH SEPARATE 3/4" CONDUIT UNLESS OTHERWISE SHO ON DRAWINGS. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING -SERVICE CABLE.

### L. SHOP DRAWINGS AND APPROVALS

1. THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE FOUIPMENT PRIOR TO BIDDING AFTER BIDDING THE DECISION OF THE ARCHI AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL

2. THE CONTRACTOR SHALL SUBMIT SEVEN (7) IDENTICAL BOUND SETS OF SHOP DRAWINGS ON THE FOLLOWING NEW ITEMS WHERE SPECIFIED ON PLANS

A. LIGHTING FIXTURE CUTS AND PERFORMANCE DATA. \_B. OUTLINE DRAWINGS & DATA SHEETS OF EACH PANELBOARD & SWITCHBOARD.

\_C. OUTLINE DRAWINGS OF ALL SWITCHGEAF

3. SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE. - M. RECORD AND AS-BUILT DRAWINGS

#### 1. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JO SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.

1 FURNISH AND INSTALL TIME SWITCHES PHOTOCELLS CONTACTORS AND FULL LIGHTING CONTROL SYSTEMS AS REQUIRED FOR LIGHTING CONTROLS INDICAT ON THE DRAWINGS

2. TIME SWITCHES SHALL BE EQUAL TO PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED. 3. PHOTOCELLS SHALL BE EQUAL TO TORK OR INTERMATIC WITH VOLTAGE AS

#### INDICATED. K. GUARANTEI

GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

# ELECTRICAL LEGEND

		LINEAR FLUORESCENT FIXTURE
8"		SUSPENDED LINEAR FLUORESCENT FIXTURE
WN	▫ੁ	FLUORESCENT WALL MOUNT FIXTURE
		LINEAR FLUORESCENT STRIP FIXTURE
	O ⊕	LIGHT FIXTURE - RECESSED OR SURFACE
	ю́	WALL MOUNTED LIGHT FIXTURE
ЗE	•	ADJUSTABLE RECESSED MOUNTED LIGHT FIXTURE
OF		RECESSED LIGHT FIXTURE
ECI	D	WALL SCONCE
		WALL WASHER
		MONO-POINT LIGHT FIXTURE
		TRACK LIGHT FIXTURE
	∙⊔	PARKING LOT POLE MOUNTED LIGHT FIXTURE
OF	Ο	BOLLARD LIGHT FIXTURE
	∞	EXIT SIGN - CEILING MOUNTED
	н⊗	EXIT SIGN - WALL MOUNTED
OB	<b>Ø</b> ŧ	EXIT SIGN - W/ARROWS INDICATE DIRECTION
Ξ		EMERGENCY BATTERY UNIT WITH HEADS
		FIXTURE w/ EMERGENCY BATTERY OR GENERATOR
	S	SINGLE POLE SWITCH, 20A, 120/277V
ED	S	TWO POLE SWITCH, 20A 120/277V
	S	THREE-WAY SWITCH 204 120/2774
	• 3 •	FINCE-VAL SWITCH, ZUA, IZU/Z//V
	3 <sub>4</sub>	FOUR-WAY SWITCH, 20A, 120/277V
	ъ <sub>р</sub>	DIMMER SWITCH, MIN. 2000W, 120/277V
	S <sub>M</sub>	HP RATED MOTOR SWITCH WITH THERMAL OVERLOAD PROTECTION
	Sa	LOWER CASE LETTER DENOTES FIXTURES TO BE
Y	Sĸ	KEY SWITCH, 20A, 120/277V
	۲	PUSH BUTTON CONTROL STATION
	OS	OCCUPANCY SENSOR - CEILING
	HOS	OCCUPANCY SENSOR - WALL MOUNTED
	HOS D	OCCUPANCY SENSOR w/DIMMER- WALL MOUNTED
	LC	
	TC	
		TIME CLOCK PHOTOCELL
	₽ ¶ 9	TIME CLOCK PHOTOCELL DUCT SMOKE DETECTOR
	E B B B	TIME CLOCK PHOTOCELL DUCT SMOKE DETECTOR
		TIME CLOCK PHOTOCELL DUCT SMOKE DETECTOR POWER
		TIME CLOCK PHOTOCELL DUCT SMOKE DETECTOR POWER ISOLATED GROUND DUPLEX RECEPTACLE
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REFER TO AV PLANS FOR ADDITIONAL LEGEND

# **APPLICABLE CODES**

2016 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, 2016 CALIFORNIA BUILDING CODE (CBC), TITLE 24 C.C.R. 2016 CALIFORNIA ELECTRICAL CODE (CEC), TITLE 24 C.C.R. 2016 CALIFORNIA MECHANICAL CODE (CMC), TITLE 24 C.C.R. 2016 CALIFORNIA PLUMBING CODE (CPC), TITLE 24 C.C.R. 2016 CALIFORNIA GREEN BUILDING CODE (CGBC) 2016 CALIFORNIA ENERGY CODE ANY OTHER LOCAL AND STATE LAWS AND REGULATIONS

## ELECTRICAL SHEET INDEX SHEET TITLI SHEET NO.

E0.1	ELECTRICAL NOTES, LEGEND, ABBREVIATION AND SI
E0.2	SINGLE LINE DIAGRAM & PANEL SCHEDULE
E2.0	MECHANICAL ROOM ELECTRICAL RENOVATION PLAN
E2.1	ELECTRICAL RENOVATION ROOF PLAN

ADDREVIATIONS	
ADDICL VIATIONS           AFF         AMPERE AFG         AROVE FINISHED FLOOR AFG           ARC FAULT, AMP FUSE AFG         AROVE FINISHED GRADE ACC           ARCHIL         AROVE FINISHED GRADE ACC           ARCHIL         AROVE FINISHED GRADE ACC           ARCHIL         AROVE FINISHED GRADE BLDG           BARE COPPER BLDG         BARE COPPER BULDING           C         CONDUIT ORLY CAR           CAT CALLOGICATEGORY CAT         CATALOGICATEGORY CAT           CAT CATALOGICATEGORY CAT         CONMUNICATION           CU         COPPER           DEMO         DEMOLITIONUT ONLY COMMUNICATION           CU         COPPER           DEMO         DEMOLITIONUT ONLY COMMUNICATION           DISCONNECT         DN           DOWM         DWG           DEMO         DEMOLITIONUT ONLY COMMUNICATION           DEMO         DEMOLITIONUT ONLY           COMMUNICATION         COMMUNICATION           DEMO         DEMOLITIONUT ONLY           COMMUNICATION         DE	<image/>
V VOLT OR VOLTAGE VA VOLT AGE DROP VP VAPOR PROOF WCR WITHSTAND CURRENT RATING WP UL LISTED WEATHERPROOF, NEMA 3R XFMR TRANSFORMER	ISUE REV. DESCRIPTION DATE PLAN CHECK SUBMITTAL 2017-0913 CD RE-SUBMITTAL 2017-1004 DITE SHEET TITLE SHEET TITLE SHEET NUMBER LEGENDD AND GENERAL NOTES SHEET NUMBER
	A A AMPERE NUMERAL DATA ARAM ADVE FILLIAND AGAIN AND SWITCH ACC AMPERENTERRUPTING CAPACITY ARAMA AMP SWITCH CAR CARLUNNUM WIE GAUGE BLDG BARE COPPER BLDG BARE COPPER BLDG CONDUT CAR CARLIER CAR CARLIER CAR CARLEN CAR CARLEN COMMING EAC DEMONICATION CUM DEMOLITON/CENCLISH DISC. DISC. DEMOLITON/CENCLISH DISC. DISC. DEMOLITON/CENCLISH DISC. DISC. DEMOLITON/CENCLISH DISC. DISC. DISC. DEMOLITON/CENCLISH DISC. DISC. D

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/ N 13				500			500			3	15A	EXISTING LOAD
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	PANEL LOAD =	P		0			100%			0		TOTAL EST. HIGH LEG DEMAND
	RECEPTACLE LOAD =	R		500			100%			500		TOTAL EST. HIGH LEG DEMAND (AI
ANEL SCHE 1 PROVI 2 PROVI 3 CIRCL ANSUI FIRE S	DULE NOTES: IDE LOCK-ON DEVICE. IDE LOCK-OFF DEVICE. JIT BREAKER CONTROLLED BY L SYSTEM. REFER TO HOOD SYSTEM INTERLOCK DIAGRAM.		(4) (5) (6)	PROVIDE PROVIDE PROVIDE TO EXISTI RATING IN	GFCI TYPE A RED CIR A NEW BRI NG TYPE A I PANEL.	DEVICE. CUIT BREA EAKER ND A.I.C.	KER.	<ul> <li>PROVIE</li> <li>FOR HV</li> <li>PROVIE</li> <li>CLOCK</li> <li>LIGHITM</li> </ul>	DE "HACR" AC EQUIP DE PHOTOO WITH REL NG CONTR	TYPE CIRC MENT. CELL AND T AYS FOR E) OL. REFER	UIT BREAKE IME CLOCK (TERIO TO EXTERIC	R. (3) EXISTING BREAKER (10) CIRCUIT MADE AVAILA DEMOLITION
	L C O I A R D C S M 1 M 3 M 5 M 7 M 7 M 9 M 17 M 19 M 17 M 19 A R 21 M 17 M 23 M 23 M 25 M 27 M 29 S M 20 S M 20 S S M 20 S M	INEWA 3R NO         FEED THRU NO         FEED THRU NO         A       R       D       C         B       D       C       DESCRIPTION         M       1       COMPRESSOR UNIT 1       M         M       3       COMPRESSOR UNIT 5       M       7       2ND FLR KIT REFIG & MICRO         M       5       COMPRESSOR UNIT 5       M       7       2ND FLR KIT REFIG & MICRO         M       15       EXISTING LOAD       M       11         N       13       EXISTING LOAD       M         M       15       EXISTING LOAD       M         M       15       EXISTING LOAD       M         M       17       EXISTING LOAD       M         M       19       EXISTING LOAD       M         M       23       NEW CONDENSIG UNIT 1       M         M       21       FIRE ALARM PANEL       M         M       23       NEW CONDENSIG UNIT 1       M         M       25       NEW CONDENSIG UNIT 1       M         M       29       SPACE       LOAD       EXISTING LOAD         LOAD CLASSIFICATION <t< td=""><td>NERMA 3 K NO         FEED THRU NO         C       C         O       I       A         D       C       TRIP         M       1       COMPRESSOR UNIT 1       30A         M       3       COMPRESSOR UNIT 5       20A         M       9       NEW FAN COIL IN MECHANICAL ROOM       15A         M       11       Z0       20         M       15       EXISTING LOAD       15         R       21       ERE ALARM PANEL       20         M       13       EXISTING LOAD       15         R       21       ERE ALARM PANEL       20         M       25       NEW CONDENSIG UNIT 1       20A         M       29       SPACE       CONTINUOUS LOAD = C       KITCHEN EQUIPMENT LOAD = K         LIGHTING LOAD       NON-CONTINUOUS LOAD = N       PANEL LOAD = N</td><td>NEWRA 3R     NO     JOUTO       FEED THRU     NO     I/G BUS       I     C     I/G BUS       I     C     I/G BUS       M     1     COMPRESSOR UNIT 1     30A       M     1     COMPRESSOR UNIT 5     20A     1       M     3     COMPRESSOR UNIT 5     20A     1       M     5     COMPRESSOR UNIT 5     20A     1       M     7     2ND FLR KIT REFRG &amp; MICRO     20A     1       M     9     NEW FAN COL IN MECHANICAL ROOM     15A     2       M     13     EXISTING LOAD     20     3       M     19     EXISTING LOAD     15     1       R     21     ERE ALARM PANEL     20     1       M     19     EXISTING LOAD     15     1       R     21     ERE ALARM PANEL     20     3       M     23     NEW CONDENSIG UNIT 1     20A     3       M     29     SPACE     TOTAL LOAD DEMAND       LOAD CLASSIFICATION     CONNIC     CONNIC       CONTINUOUS LOAD = C     I/G     MOTOR LOAD = K       LIGHTING LOAD = L     I/G     I/G       NON-CONTINUOUS LOAD = N     PANEL LOAD = N       PANEL LOAD = P</td><td>NEMA 3R     NO     200%     NO       FEED THRU     NO     NG BUS     NO       L     C     I     NG BUS     NO       A     R     TRIP     AMPS     POLES       M     1     COMPRESSOR UNIT 1     30A     2     2500       M     3     Image: Compression Unit 5     20A     1     500       M     5     COMPRESSOR UNIT 5     20A     1     500       M     7     2NDERKIT REFRG &amp; MICPO     20A     1     500       M     9     NEWFAN COLLIN MECHANICAL ROOM     15A     2     Image: Compression Unit 5       M     15     EXISTING LOAD     15     1     500       M     19     EXISTING LOAD     15     1     500       M     19     EXISTING LOAD     15     1     500       M     25     NEW CONDENSIG UNIT 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29     <t< td=""><td>NEWA 3K NO         NO         Priases           FEED THRU NO         I/G BUS NO         Wires:           I/G BUS NO         A           B         C           I/G BUS NO         A           B         DESCRIPTION           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 3         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         NEW FAN COLIN MECHANICAL ROOM           M 19         EXISTING LOAD           M 19         EXISTING LOAD           M 20         FREALARM PANEL           I/G A         I/G A           M 21         EREALARM PANEL           I/G A         I/G A           I/G A</td><td>Network N         NO         Print Sets: 3           FEED THRU NO         I/G BUS NO         Wires: 4           L         C         TRIP         A         B         C           0         C         TRIP         A         B         C           0         C         DESCRIPTION         AMPS         POLES         C           M         1         COMPRESSOR UNIT 5         20A         1         1600           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         7         ZNDELRKIT REPRIS &amp; MORO         20A         1         500         1           M         15         COMPRESSOR UNIT 1         20         3         500         1           M         15         EXISTING LOAD         15         1         500         1           M         19         EXISTING LOAD         15         1         500         1         1230           M         12         EXISTING LOAD         15         1         500         1         1230           M<td>NEWFAR COL         NO         200% NO         Presest 3 UGBUS NO           L         C         I         A         B         C         A           A         R         C         A         B         C         A           B         C         DESCRIPTION         AMPS         POLES         1442           M         1         COMPRESSOR UNIT 1         30A         2         2500         1442           M         3         COMPRESSOR UNIT 5         20A         1         500         50           M         7         200 PLIC RIT BERKIS &amp; MORO         20A         1         500         500           M         9         NEWFAN COL N MECHANICAL ROOM         15A         2         427         500           M         11         EXISTING LOAD         20         3         500         2763           M         12         EXISTING LOAD         15         1         500         2763           M         12         EXISTING LOAD         10         1230         1230         1230           M         13         SA         00         1233         1230         1230           M         12         D</td><td>NEMA SK         NO         Plases: 3 IVGBUS         Plases: 3 IVGBUS         Plases: 3 IVGBUS           L         C         I         A         B         C         A         B           L         C         I         A         B         C         A         B           C         DESCRIPTION         AMPS         POLES         A         B         C         A         B           M         1         OMPRESSOR UNIT 1         30A         2         2500         1442         442           M         5         OMPRESSOR UNIT 5         20A         1         500         500         500           M         7         2NDELRKIT REFRG &amp; MCRO         20A         1         500         500         500         500           M         1         NEWFAN COLIN MECHANICAL ROOM         15A         2         427         500</td></td></t<><td>Network 3K KO         200% KO         Priases: 3           I         0         I/G BUS NO         Wires: 4           I         0         I         A         B         C         A         B         C           I         0         R         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         A         B         C         A         A         B         C         A         A         B         C         A         B         C         A         A         A         A         A         A         A         A         A         A         A         A         A         A</td></td></t<> <td>NEMA SK NO         NO         Prases: 2           ICBUS NO         Wires: 4           ICBUS NO         DESCRIPTION           AMPS         POLES           ICBUS NO         2500           ICBUS NO         1442           ICBUS NO         1442           ICBUS NO         1442           ICBUS NO         200         1           ICBUS NO         200         3           ICBUS NO         200         203           ICBUS NO         200         2763           ICBUS NO         2763         3           ICALAD CLASSIFICATION         200</td> <td>NEWN 3K MO         NO         Priatest: 3 IGBUS NO         Priatest: 3 Wres: 4           L         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           M         1         OMPRESSORUT1         30A         1         500         1442         3         15A           M         7         200 A         1         500         500         1         30A           M         7         200 B         1         500         500         3         15A           M         7         1         500         500         2763         3         40           M         19         EXISTING LOAD         15         <td< td=""></td<></td>	NERMA 3 K NO         FEED THRU NO         C       C         O       I       A         D       C       TRIP         M       1       COMPRESSOR UNIT 1       30A         M       3       COMPRESSOR UNIT 5       20A         M       9       NEW FAN COIL IN MECHANICAL ROOM       15A         M       11       Z0       20         M       15       EXISTING LOAD       15         R       21       ERE ALARM PANEL       20         M       13       EXISTING LOAD       15         R       21       ERE ALARM PANEL       20         M       25       NEW CONDENSIG UNIT 1       20A         M       29       SPACE       CONTINUOUS LOAD = C       KITCHEN EQUIPMENT LOAD = K         LIGHTING LOAD       NON-CONTINUOUS LOAD = N       PANEL LOAD = N	NEWRA 3R     NO     JOUTO       FEED THRU     NO     I/G BUS       I     C     I/G BUS       I     C     I/G BUS       M     1     COMPRESSOR UNIT 1     30A       M     1     COMPRESSOR UNIT 5     20A     1       M     3     COMPRESSOR UNIT 5     20A     1       M     5     COMPRESSOR UNIT 5     20A     1       M     7     2ND FLR KIT REFRG & MICRO     20A     1       M     9     NEW FAN COL IN MECHANICAL ROOM     15A     2       M     13     EXISTING LOAD     20     3       M     19     EXISTING LOAD     15     1       R     21     ERE ALARM PANEL     20     1       M     19     EXISTING LOAD     15     1       R     21     ERE ALARM PANEL     20     3       M     23     NEW CONDENSIG UNIT 1     20A     3       M     29     SPACE     TOTAL LOAD DEMAND       LOAD CLASSIFICATION     CONNIC     CONNIC       CONTINUOUS LOAD = C     I/G     MOTOR LOAD = K       LIGHTING LOAD = L     I/G     I/G       NON-CONTINUOUS LOAD = N     PANEL LOAD = N       PANEL LOAD = P	NEMA 3R     NO     200%     NO       FEED THRU     NO     NG BUS     NO       L     C     I     NG BUS     NO       A     R     TRIP     AMPS     POLES       M     1     COMPRESSOR UNIT 1     30A     2     2500       M     3     Image: Compression Unit 5     20A     1     500       M     5     COMPRESSOR UNIT 5     20A     1     500       M     7     2NDERKIT REFRG & MICPO     20A     1     500       M     9     NEWFAN COLLIN MECHANICAL ROOM     15A     2     Image: Compression Unit 5       M     15     EXISTING LOAD     15     1     500       M     19     EXISTING LOAD     15     1     500       M     19     EXISTING LOAD     15     1     500       M     25     NEW CONDENSIG UNIT 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29     SPACE     Image: Compression Unit 1     20A     3     1230       M     29 <t< td=""><td>NEWA 3K NO         NO         Priases           FEED THRU NO         I/G BUS NO         Wires:           I/G BUS NO         A           B         C           I/G BUS NO         A           B         DESCRIPTION           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 3         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         NEW FAN COLIN MECHANICAL ROOM           M 19         EXISTING LOAD           M 19         EXISTING LOAD           M 20         FREALARM PANEL           I/G A         I/G A           M 21         EREALARM PANEL           I/G A         I/G A           I/G A</td><td>Network N         NO         Print Sets: 3           FEED THRU NO         I/G BUS NO         Wires: 4           L         C         TRIP         A         B         C           0         C         TRIP         A         B         C           0         C         DESCRIPTION         AMPS         POLES         C           M         1         COMPRESSOR UNIT 5         20A         1         1600           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         7         ZNDELRKIT REPRIS &amp; MORO         20A         1         500         1           M         15         COMPRESSOR UNIT 1         20         3         500         1           M         15         EXISTING LOAD         15         1         500         1           M         19         EXISTING LOAD         15         1         500         1         1230           M         12         EXISTING LOAD         15         1         500         1         1230           M<td>NEWFAR COL         NO         200% NO         Presest 3 UGBUS NO           L         C         I         A         B         C         A           A         R         C         A         B         C         A           B         C         DESCRIPTION         AMPS         POLES         1442           M         1         COMPRESSOR UNIT 1         30A         2         2500         1442           M         3         COMPRESSOR UNIT 5         20A         1         500         50           M         7         200 PLIC RIT BERKIS &amp; MORO         20A         1         500         500           M         9         NEWFAN COL N MECHANICAL ROOM         15A         2         427         500           M         11         EXISTING LOAD         20         3         500         2763           M         12         EXISTING LOAD         15         1         500         2763           M         12         EXISTING LOAD         10         1230         1230         1230           M         13         SA         00         1233         1230         1230           M         12         D</td><td>NEMA SK         NO         Plases: 3 IVGBUS         Plases: 3 IVGBUS         Plases: 3 IVGBUS           L         C         I         A         B         C         A         B           L         C         I         A         B         C         A         B           C         DESCRIPTION         AMPS         POLES         A         B         C         A         B           M         1         OMPRESSOR UNIT 1         30A         2         2500         1442         442           M         5         OMPRESSOR UNIT 5         20A         1         500         500         500           M         7         2NDELRKIT REFRG &amp; MCRO         20A         1         500         500         500         500           M         1         NEWFAN COLIN MECHANICAL ROOM         15A         2         427         500</td></td></t<> <td>Network 3K KO         200% KO         Priases: 3           I         0         I/G BUS NO         Wires: 4           I         0         I         A         B         C         A         B         C           I         0         R         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         A         B         C         A         A         B         C         A         A         B         C         A         B         C         A         A         A         A         A         A         A         A         A         A         A         A         A         A</td>	NEWA 3K NO         NO         Priases           FEED THRU NO         I/G BUS NO         Wires:           I/G BUS NO         A           B         C           I/G BUS NO         A           B         DESCRIPTION           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 3         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         COMPRESSOR UNIT 5           I/G BUS NO         20A           M 1         NEW FAN COLIN MECHANICAL ROOM           M 19         EXISTING LOAD           M 19         EXISTING LOAD           M 20         FREALARM PANEL           I/G A         I/G A           M 21         EREALARM PANEL           I/G A         I/G A           I/G A	Network N         NO         Print Sets: 3           FEED THRU NO         I/G BUS NO         Wires: 4           L         C         TRIP         A         B         C           0         C         TRIP         A         B         C           0         C         DESCRIPTION         AMPS         POLES         C           M         1         COMPRESSOR UNIT 5         20A         1         1600           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         5         COMPRESSOR UNIT 5         20A         1         500         1           M         7         ZNDELRKIT REPRIS & MORO         20A         1         500         1           M         15         COMPRESSOR UNIT 1         20         3         500         1           M         15         EXISTING LOAD         15         1         500         1           M         19         EXISTING LOAD         15         1         500         1         1230           M         12         EXISTING LOAD         15         1         500         1         1230           M <td>NEWFAR COL         NO         200% NO         Presest 3 UGBUS NO           L         C         I         A         B         C         A           A         R         C         A         B         C         A           B         C         DESCRIPTION         AMPS         POLES         1442           M         1         COMPRESSOR UNIT 1         30A         2         2500         1442           M         3         COMPRESSOR UNIT 5         20A         1         500         50           M         7         200 PLIC RIT BERKIS &amp; MORO         20A         1         500         500           M         9         NEWFAN COL N MECHANICAL ROOM         15A         2         427         500           M         11         EXISTING LOAD         20         3         500         2763           M         12         EXISTING LOAD         15         1         500         2763           M         12         EXISTING LOAD         10         1230         1230         1230           M         13         SA         00         1233         1230         1230           M         12         D</td> <td>NEMA SK         NO         Plases: 3 IVGBUS         Plases: 3 IVGBUS         Plases: 3 IVGBUS           L         C         I         A         B         C         A         B           L         C         I         A         B         C         A         B           C         DESCRIPTION         AMPS         POLES         A         B         C         A         B           M         1         OMPRESSOR UNIT 1         30A         2         2500         1442         442           M         5         OMPRESSOR UNIT 5         20A         1         500         500         500           M         7         2NDELRKIT REFRG &amp; MCRO         20A         1         500         500         500         500           M         1         NEWFAN COLIN MECHANICAL ROOM         15A         2         427         500</td>	NEWFAR COL         NO         200% NO         Presest 3 UGBUS NO           L         C         I         A         B         C         A           A         R         C         A         B         C         A           B         C         DESCRIPTION         AMPS         POLES         1442           M         1         COMPRESSOR UNIT 1         30A         2         2500         1442           M         3         COMPRESSOR UNIT 5         20A         1         500         50           M         7         200 PLIC RIT BERKIS & MORO         20A         1         500         500           M         9         NEWFAN COL N MECHANICAL ROOM         15A         2         427         500           M         11         EXISTING LOAD         20         3         500         2763           M         12         EXISTING LOAD         15         1         500         2763           M         12         EXISTING LOAD         10         1230         1230         1230           M         13         SA         00         1233         1230         1230           M         12         D	NEMA SK         NO         Plases: 3 IVGBUS         Plases: 3 IVGBUS         Plases: 3 IVGBUS           L         C         I         A         B         C         A         B           L         C         I         A         B         C         A         B           C         DESCRIPTION         AMPS         POLES         A         B         C         A         B           M         1         OMPRESSOR UNIT 1         30A         2         2500         1442         442           M         5         OMPRESSOR UNIT 5         20A         1         500         500         500           M         7         2NDELRKIT REFRG & MCRO         20A         1         500         500         500         500           M         1         NEWFAN COLIN MECHANICAL ROOM         15A         2         427         500	Network 3K KO         200% KO         Priases: 3           I         0         I/G BUS NO         Wires: 4           I         0         I         A         B         C         A         B         C           I         0         R         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         B         C         A         A         B         C         A         A         B         C         A         A         B         C         A         B         C         A         A         A         A         A         A         A         A         A         A         A         A         A         A	NEMA SK NO         NO         Prases: 2           ICBUS NO         Wires: 4           ICBUS NO         DESCRIPTION           AMPS         POLES           ICBUS NO         2500           ICBUS NO         1442           ICBUS NO         1442           ICBUS NO         1442           ICBUS NO         200         1           ICBUS NO         200         3           ICBUS NO         200         203           ICBUS NO         200         2763           ICBUS NO         2763         3           ICALAD CLASSIFICATION         200	NEWN 3K MO         NO         Priatest: 3 IGBUS NO         Priatest: 3 Wres: 4           L         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           A         B         C         A         B         C         A         B         C         TRIP           M         1         OMPRESSORUT1         30A         1         500         1442         3         15A           M         7         200 A         1         500         500         1         30A           M         7         200 B         1         500         500         3         15A           M         7         1         500         500         2763         3         40           M         19         EXISTING LOAD         15 <td< td=""></td<>





NONE

SINGLE LINE	GENERAL NOTES	CLIENT
1. ALL OVERO EQUIPMEN OVERALL R DEVICES W 2. SERIES CO BY UL IN CO THE EQUIP MARKED W EQUIPMEN	CURRENT DEVICES IN AN INDIVIDUAL PIECE OF T SHALL HAVE AN AIC RATING EQUAL TO THE ATING OF THE EQUIPMENT - SERIES RATING OF THIN A PIECE OF EQUIPMENT IS NOT ALLOWED. NNECTED DEVICES SHALL HAVE BEEN INVESTIGATED OMBINATION WITH THE END USE EQUIPMENT, AND MENT IN WHICH THESE DEVICES ARE USED SHALL BE AND MENT IN WHICH THESE DEVICES ARE USED SHALL BE ATT SHALL BE MARKED IN ACCORDANCE WITH NEC	TORRANCE H
3. ALL TERMII	ENTS. NATIONS AND ENCLOSURES SHALL BE RATED FOR 25 DEGREE CELSIUS CONDUCTORS.	CITY OF TORRANCE
4. ALL SERVIO DISTRIBUTI AMPS OR O OVERCURF CONTINUO	CE ENTRANCE EQUIPMENT, SWITCHBOARDS, ON BOARDS, AND PANELBOARDS RATED AT 400 GREATER, SHALL BE PROVIDED WITH A MAIN RENT DEVICE AND BUSSING RATED AT 100% US OPERATION.	3031 TORRANCE BLVD. TORRANCE , CA 90503
5. ALL BRANC RATED AT 4 CONTINUO	CH OR FEEDER CIRCUIT OVER-CURRENT DEVICES 100 AMPS OR HIGHER SHALL BE RATED FOR 100% LUS OPERATION.	BUILDING & SAFETY HVAC
6. CONTRACT TO THE SE FABRICATIO THAT THE F POWER CO	OR SHALL SUBMIT SWITCHBOARD SHOP DRAWINGS RVING UTILITY FOR APPROVAL PRIOR TO DN. CONTRACTOR SHALL SECURE CONFIRMATION PROPOSED SWITCHBOARD COMPLIES WITH THE MPANY REGULATIONS.	TOP UNIT REPLACEMENT
7. BUSSING: A. ALL BU CONST BUSSIN SECTIO	ISSING SHALL BE COPPER OR ALUMINUM IN RUCTION. MAIN HORIZONTAL AND VERTICAL NG SHALL BE FULL CAPACITY IN ALL SWITCHBOARD DNS.	
B. HORIZO LENGT WITHS CURRE BE LES	ONTAL AND VERTICAL BUSSING SHALL BE FULL H. ALL BUSSING SHALL HAVE A MINIMUM TAND RATING EQUAL TO THE AVAILABLE FAULT ENT INDICATED, BUT IN NO CASE SHALL THE RATING IS THAN 65,000 AMPS, SYMMETRICAL.	IDS GROUP 1 PETERS CANYON ROAD, SUITE 130
8. GROUND F. A. TO MIN FEEDE GROUN DEVICE NON-G AND TI MANUF A CON COORI	AULT RELAY SETTINGS: IIMIZE NUISANCE TRIPPING OF THE MAIN AND R BREAKER, THE CONTRACTOR SHALL ADJUST THE ND FAULT RELAY SETTINGS FOR ALL THE GFP ES TO BE HIGHER THAN ALL DOWNSTREAM GFP AND FP DEVICES. THE GROUND FAULT CURRENT PICK-UP ME DELAY SETTINGS SHALL BE ADJUSTED, PER THE FACTURERS RECOMMENDATIONS, RESULTING FROM TRACTOR/MANUFACTURER PREPARED DINATION STUDY - WHICH SHALL BE DOCUMENTED IN	IRVINE, CA. 92606 TEL: 949-387-8500, FAX: 949-387-0800 Project # 17X036.00
B. DURING GROUI	OP DRAWING SUBMITTAL. G THE CONSTRUCTION PHASE OF THE PROJECT, ALL ND FAULT RELAYS SHALL BE SET AT THE SHORTEST	NOT FOR CONSTRUCTION
AVAILA C. AFTER CONTE TESTE 230-95 PRESE JURISE DELIVE	ABLE TIME DELAY. ALL SETTINGS HAVE BEEN ADJUSTED, THE CACTOR SHALL HAVE THE GROUND FAULT SYSTEM D BY AN INDEPENDENT TESTING AGENCY PER NEC (C). THIS TEST SHALL BE PERFORMED IN THE NCE OF THE LOCAL AUTHORITY HAVING DICTION AND THE TEST RESULTS SHALL BE ERED TO THE ENGINEER OF RECORD.	Date
SINGLE LINE	GENERAL NOTES	STAMD
1 SINGLE OUR B DISTRI ALL CO ELECT	E LINE DIAGRAM IS BUILT BASED ON SITE VISIT TO EST UNDERSTANDING, VERIFY FEEDING FOR BUTION PANEL 'DP' IN MECHANICAL ROOM. VERIFY ONDUCTORS AND BREAKERS PRIOR TO ANY RICAL WORK.	
		E 18557 Exp. 12-31-18
		ISSUEREV.DESCRIPTIONDATEPLAN CHECK SUBMITTAL2017-0913CD RE-SUBMITTAL2017-1004IndextIndext
		SHEET TITLE
		ELECTRICAL SINGLE LINE DIAGRAM & PANEL SCHEDULE SHEET NUMBER
A		E0.2



MECHANICAL ROOM - ELECTRICAL RENOVATION PLAN 1/2" = 1'-0"

PLAN GENERAL NOTES	CLIENT
<ol> <li>ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.</li> <li>ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL</li> </ol>	TORRANCE ST
<ol> <li>3. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.</li> </ol>	R. ALESIDENTIAL
<ol> <li>ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.</li> </ol>	OTTOF TORRANCE 3031 TORRANCE BLVD. TORRANCE , CA 90503
5. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQUIRED BY THE LOCAL ELECTRICAL CODE.	BUILDING & SAFETY HVAC SPLIT SYSTEM AND ROOF
6. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF POWER WIRING TO ROOF-MOUNTED EQUIPMENT WITHIN MECHANICAL PIPE CURB ASSEMBLY. NO SEPARATE ROOF PENETRATIONS WILL BE PERMITTED. ALL WIRING SHALL BE BELOW THE ROOF IN AN ACCESSIBLE CEILING SPACE LOCATION.	TOP UNIT REPLACEMENT
<ol> <li>ALL ROOF MOUNTED EQUIPMENT SHALL BE NEMA 3R RATED.</li> <li>ALL DISCONNECT SWITCHES SHALL BE HP RATED IN ACCORDANCE WITH NEC 430-109.</li> </ol>	
9. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.	IDS GROUP 1 PETERS CANYON ROAD, SUITE 130 IRVINE, CA. 92606 TEL: 040 287 8500 EAX: 040 287 0800
SHEET NOTES	Project # 17X036.00
PROVIDE NEW HP RATED MOTOR SWITCH WITH THERMAL OVERLOAD PROTECTION TO REPLACE EXISTING.	STAMP
PROVIDE WEATHER PROOF J-BOX AND 3/4" SEALTITE CONDUIT FOR MECHANICAL CONTROLS CONNECTION. COORDINATE WITH MECHANICAL CONTROL S CONTRACTORS.	NOT FOR CONSTRUCTION
REMOVE ALL EXISTING CONDUCTORS AND DISCONNECTS.	Date
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PLAN GENERAL NOTES	CLIENT
1. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.	
<ol> <li>ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL INFORMATION.</li> </ol>	THERE IS A CARE
<ol> <li>ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.</li> </ol>	CITY OF TORRANCE 3031 TORRANCE BLVD.
<ol> <li>ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.</li> </ol>	TORRANCE , CA 90503
5. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQUIRED BY THE LOCAL ELECTRICAL CODE.	BUILDING & SAFETY HVAC SPLIT SYSTEM AND ROOF
6. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF POWER WIRING TO ROOF-MOUNTED EQUIPMENT WITHIN MECHANICAL PIPE CURB ASSEMBLY. NO SEPARATE ROOF PENETRATIONS WILL BE REPORTED. ALL WIRING SHALL BE RELOW	TOP UNIT REPLACEMENT
THE ROOF IN AN ACCESSIBLE CEILING SPACE LOCATION.	
<ol> <li>ALL ROOF MOUNTED EQUIPMENT SHALL BE NEMA 3R RATED.</li> <li>ALL DISCONNECT SWITCHES SHALL BE HP RATED IN ACCORDANCE WITH NEC 430-109.</li> </ol>	
9. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.	IDS GROUP 1 PETERS CANYON ROAD, SUITE 130
	IRVINE, CA. 92606 TEL: 949-387-8500, FAX: 949-387-0800 Project # 17X036.00
PROVIDE NEW WEATHER PROOF FUSED DISC. SWITCH AND SEALTITE CONDUIT FOR POWER CONNECTION TO HVAC UNIT. COORDINATE WITH MECHANICAL CONTRACTOR.	
PROVIDE WEATHER PROOF J-BOX AND 3/4" SEALTITE CONDUIT FOR MECHANICAL CONTROLS CONNECTION. COORDINATE WITH MECHANICAL CONTROLS CONTRACTORS.	Date
REMOVE ALL EXISTING CONDUCTORS, CONDUITS AND DISCONNECTS FOR REPLACED UNIT ALL THE WAY TO THE EXISTING	
PANEL, KEEP THE EXISTING BREAKER AND MARK AS SPARE.	
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	ISSUE
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	SHEET TITLE
	ELECTRICAL RENOVATION
	SHEET NUMBER
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