GENERAL NOTES

<u>CODE ANALYSIS - EDUCATIONAL/STATE</u>

BUILDING OCCUPANCY CLASSIFICATION: GROUP E

THE CONSTRUCTION OF THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF:

1. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 2 - CALIFORNIA BUILDING CODE (CBC) - 2001 EDITION.
2. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 3 - CALIFORNIA ELECTRICAL CODE (CEC) - 2001 EDITION.
3. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 9 - CALIFORNIA FIRE CODE (CFC) - 2001 EDITION.

<u>ELECTRICAL NOTES - EDUCATIONAL/STATE</u>

1. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS, BUS DUCT, WIREWAY, AND CABLE TRAY SHALL BE IN ACCORDANCE WITH THE "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND PPIC, AND APPROVED BY DSA, OCTOBER 13, 1982, DSA PRE-APPROVAL NO. R0010-1A, OR PER DSA PRE-APPROVAL NO. 5003 FOR SUPERSTRUT-SEISMIC RESTRAINT SYSTEM, OR PER DSA PRE-APPROVAL NO. R0071, THE KIN-LINE SEISMIC RESTRAINT SYSTEM.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS, WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:

   AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
   INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
   NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
   AMERICAN STANDARD ASSOCIATION (ASA)
   NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
   AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
   CALIFORNIA ELECTRICAL CODE (CEC) - 2001 EDITION
   CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
   INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
   ALL LOCAL CODES HAVING JURISDICTION.

   WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST STRINGENT RULE SHALL APPLY.

4. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BY SUBMITTING A BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS AND SPECIFICATIONS. HE SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM DOING THE WORK IN COMPLETE ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

6. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES.

7. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES AT THE SITE. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

8. THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. THESE PRINTS SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS. THIS SET OF DRAWINGS SHALL BE KEPT ON THE JOB SITE AND SHALL BE USED ONLY AS A RECORD SET. THIS SHALL NOT BE CONSTRUED AS AUTHORIZATION FOR THE CONTRACTOR TO MAKE CHANGES IN THE LAYOUT WITHOUT DEFINITE INSTRUCTION IN EACH CASE. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE ARCHITECT, AND ALL CHANGES AS NOTED ON THE RECORD SET OF DRAWINGS SHALL BE INCORPORATED THEREON WITH BLACK INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER. FAILURE TO KEEP RECORD DRAWINGS UP-TO-DATE SHALL CONSTITUTE CAUSE FOR WITHHOLDING OF PROGRESS PAYMENTS.

9. IN SOME INSTANCES, IT MAY BE NECESSARY TO DEFER WORK IN CERTAIN AREAS AND LOCATIONS UNTIL SUCH TIME AS EXISTING FACILITIES CAN BE TEMPORARILY OR PERMANENTLY REARRANGED BY THE OWNER. THEREFORE, WHENEVER IT BECOMES NECESSARY FOR THE CONTRACTOR TO PERFORM WORK UNDER THIS CONTRACT IN EXISTING AREAS IN WHICH THE OWNER'S WORK IS BEING PERFORMED, THE CONTRACTOR SHALL ADVISE THE ARCHITECT AND THE OWNER RELATIVE TO THIS REQUIREMENT AND SHALL FOLLOW CLOSELY THE DIRECTIVE ISSUED BY THE ARCHITECT INSOFAR AS TIME AND PROCEDURE ARE CONCERNED. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL PREMIUM TIME TO WHICH HE MAY BE SUBJECTED FOR PERFORMING WORK IN SUCH PROCEDURE AND AT SUCH TIMES AS MAY BE NECESSARY TO CAUSE THE LEAST INTERFERENCE WITH THE OPERATIONS OF THE OWNER.

10. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE OWNER AND ENGINEER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.

11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TEMPORARY POWER FACILITIES AND CONNECTIONS FOR ALL FEEDERS OR SYSTEMS BEING DISCONNECTED IN ORDER TO MAINTAIN SYSTEMS IN OPERATION OR WHERE SAID FEEDERS OR SYSTEMS REQUIRE EMERGENCY STANDBY POWER. COORDINATE WITH SCHOOL DISTRICT AND PROVIDE TEMPORARY POWER (DEDICATED CIRCUIT) TO MDF DURING CONSTRUCTION.

12. SHOP DRAWINGS SHALL BE SUBMITTED WITHIN THIRTY DAYS AFTER AWARD OF THE CONTRACT. THE CONTRACTOR SHALL SUBMIT EIGHT COPIES OF A COMPLETE LIST OF MATERIALS AND EQUIPMENT INCLUDING MANUFACTURER AND MODEL NUMBER PROPOSED FOR THE JOB. SHOP DRAWINGS SHALL INCLUDE JOB DESCRIPTION, ARCHITECT AND ENGINEER IDENTIFICATION, AND ALL DATA WITH CAPACITIES, SIZES, DIMENSIONS, CATALOG NUMBERS, AND MANUFACTURER'S BROCHURES. SHOP DRAWINGS SHALL BE SUBMITTED FOR ITEMS LISTED IN SPECIFICATIONS. PARTIAL, INCOMPLETE, OR UNBOUND SUBMITTALS WILL BE RETURNED WITHOUT REVIEW. CONTRACTOR SHALL SUBMIT A SCHEDULE OF ALL SHOP DRAWINGS AND SUBMITTALS WHICH ARE TO BE REVIEWED WITHIN FIFTEEN DAYS OF CONTRACT AWARD.

13. AFTER ALL REQUIREMENTS OF THE SPECIFICATIONS AND/OR THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNERS WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

14. THE CONTRACTOR SHALL FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF SUBSTANTIAL COMPLETION.

15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND TO COORDINATE WITH THE MECHANICAL, FIRE PROTECTION AND PLUMBING DRAWINGS FOR DUCTS, LINES AND EQUIPMENT.

16. ALL EQUIPMENT MOUNTED ON ROOF FOR CONNECTION OF HVAC EQUIPMENT SHALL BE MOUNTED ON UNISTRUT STANDS UTILIZING APPROVED PITCH POCKETS, FLASHING, ETC. AS DIRECTED BY ARCHITECT. EQUIPMENT <u>SHALL NOT</u> BE MOUNTED ON HVAC EQUIPMENT.

17. ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.

18. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, AND CONDUIT FOR MECHANICAL AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

19. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADEBEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE UL APPROVED.

20. CONNECTIONS TO VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS:

    LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS.

    LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.

21. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR-PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL CONFORM TO THE CEC.

22. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

23. CONDUIT SHALL NOT BE INSTALLED IN ANY FLOOR SLAB. CONDUIT SHALL BE INSTALLED CONCEALED IN THE CEILING SPACE, CONCEALED IN WALLS, OR BELOW SLAB ON GRADE UNLESS NOTED OTHERWISE.

24. ATTENTION IS CALLED TO THE FACT THAT THE CEILING SYSTEMS FOR THE MOST PART ARE CONSIDERED TO BE INACCESSIBLE. THE CONTRACTOR SHALL STRATEGICALLY LOCATE BOXES, ETC., IN AN ACCESSIBLE CEILING SPACE.

25. COORDINATE REQUIRED ACCESS DOORS IN NON-ACCESSIBLE CEILINGS TO SUIT FIELD CONDITIONS. THE EXACT SIZES AND PHYSICAL LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL BE PROVIDED IN OTHER SECTIONS OF THE SPECIFICATIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.

26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAWCUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO PERFORM HIS WORK. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN TRENCHING FOR HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED BY HIM OR HIS WORK.

27. WHENEVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIALS), ARISES ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ARCHITECT/ENGINEER.

28. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY TYPE OF CEILING SYSTEMS AND TO FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN SUBJECT CEILING. WHERE FIXTURES ARE RECESSED IN PLASTER OR DRYWALL CEILINGS, THEY SHALL BE COMPLETE WITH NECESSARY MOUNTING HARDWARE AND PLASTER FRAMES.

29. ALL RECESSED LIGHTING FIXTURES, SPEAKERS, RECEPTACLES, SWITCHES, ETC., MOUNTED IN THE FIRE RATED CEILINGS OR WALLS SHALL BE ENCLOSED WITH AN APPROVED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALL.

30. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES, SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL SECURELY INSTALLED.

    STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

    OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

    OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

    STEEL ELECTRICAL OUTLET BOXES WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED OR EQUAL.

    FIRESTOPPING MATERIAL: MPP-1 MOLDABLE PUTTY PADS

    3M CONTRACTOR PRODUCTS
    MINNEAPOLIS, MN
    3M TEST REPORT NO. 1167
    DATED AUGUST 21, 1987

    FSP FIRESTOP PUTTY PADS
    HEVI-DUTY NELSON PRODUCTS
    TULSA, OK

    FLAMESAFE FSP 1077 FIRESTOP PADS
    INTERNATIONAL PROTECTIVE COATINGS
    OAKHURST, NJ

    STEEL UTILITY BOXES WHICH EXCEED 100 SQUARE INCHES IN AREA SHALL BE PROTECTED BY ENCASEMENT.

    UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD OF FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH. IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

31. ARCHITECTURAL REFLECTED CEILING PLANS INDICATING THE LOCATION OF LIGHTING FIXTURES SHALL TAKE PRECEDENCE OVER THE LOCATIONS OF SAME SHOWN ON THE ELECTRICAL DRAWINGS. INSTALL THE LIGHTING FIXTURES IN ANY GIVEN AREA TO AGREE WITH THE REFLECTED CEILING PLANS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

32. THE EXACT LOCATIONS AND MOUNTING HEIGHTS OF LIGHTING FIXTURES LOCATED IN MECHANICAL EQUIPMENT SPACES AND PENTHOUSES SHALL BE COORDINATED IN THE FIELD BEFORE INSTALLATION TO AVOID INTERFERENCE WITH DUCTS, PIPING, AND OTHER MECHANICAL EQUIPMENT. WHEN LOCATIONS AND MOUNTING HEIGHTS ARE DETERMINED, OBTAIN APPROVAL FROM THE ARCHITECT.

33. REFER TO SINGLE LINE DIAGRAM AND FEEDER SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE TO PANELS. TRANSFORMERS, MECHANICAL AND PLUMBING EQUIPMENT, ETC. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT ARE PART OF THIS CONTRACT.

34. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

35. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 370-6, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1-1/2 INCHES DEEP.

4" SQ. BY 1-1/2" D =	9 CONDUCTORS
4" SQ. BY 2-1/8" D =	13 CONDUCTORS
4-11/16" SQ. BY 1-1/2" D =	11 CONDUCTORS
4-11/16" SQ. BY 2-1/8" D =	18 CONDUCTORS

    ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED. TWO DEVICES DOUBLE GANGED, MINIMUM.

36. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO CIRCUIT BREAKERS.

37. RECESSED PANELS AND CABINETS SHALL HAVE FIVE SPARE 3/4" IDENTIFICATION SYMBOLS INDICATING THE NUMBER OF LIGHT FIXTURES REQUIRED SHALL NOT BE USED BY THE CONTRACTOR FOR HIS QUANTITY TAKE-OFF AT BIDDING, NOR FOR DETERMINATION OF HOW MANY FIXTURES WILL BE INSTALLED. THE CONTRACTOR SHALL INSTALL A LIGHT FIXTURE WHEREVER A FIXTURE OUTLET IS SHOWN ON THE DRAWINGS.

38. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, MOUNT ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:

WALL SWITCH	+4'-0" SET VERTICALLY
CONVENIENCE RECEPTACLE	+1'-6" SET VERTICALLY
TELEPHONE/DATA OUTLETS	+1'-6" SET VERTICALLY.
DEVICES AT COUNTERS WITHOUT SPLASHES OR CENTERED IN SPLASH SET HORIZONTALLY	+6" ABOVE COUNTERS

    REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK. OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL GOVERN NUMBER AND TYPE OF OUTLETS. HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK. FINISH FLUSH WITH FACE OF SPLASH, CABINET, ETC.

    MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO CENTER OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

39. DRAWINGS ARE DIAGRAMMATIC ONLY. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER SECTIONS. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, OR MECHANICAL ITEMS OR FEATURES.

40. WHERE FIXTURES ARE SHOWN TO BE DUAL SWITCHED, SWITCH Sa SHALL CONTROL THE TWO OUTSIDE LAMPS IN EACH FIXTURE, Sb SHALL CONTROL THE REMAINING LAMPS IN EACH FIXTURE.

41. THE EQUIPMENT GROUNDING CONDUCTOR ALTHOUGH NOT SHOWN ON CONDUIT RUNS SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO LAST OUTLET. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SO THAT IF DEVICE IS REMOVED, GROUND WILL NOT BE INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS - ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED. CONTRACTOR SHALL NOTIFY ELECTRICAL ENGINEER TO EXAMINE CONDUCTOR INSTALLATION PRIOR TO INSTALLATION OF DEVICES.

42. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR HOUSEKEEPING PADS.

43. FOR SMALL AC MOTORS NOT HAVING BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE MANUAL MOTOR STARTERS WITH OVERLOAD HEATER ELEMENTS SIZED TO THE NAMEPLATE CURRENT RATING OF THE MOTOR. SMALL AC MOTORS WITH BUILT-IN THERMAL OVERLOAD PROTECTION, PROVIDE A HORSEPOWER RATED TOGGLE TYPE DISCONNECT SWITCH.

44. ALL CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND UL LISTED UNLESS NOTED NOTED OTHERWISE. CONDUCTORS #12 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #10 AWG AND LARGER SHALL BE STRANDED.

45. JUNCTION AND PULL BOXES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS, FOR OUTSIDE, DAMP, OR SURFACE LOCATIONS, BOXES SHALL BE HEAVY CAST ALUMINUM OR CAST IRON WITH REMOVABLE, GASKETED, NON-FERROUS MACHINE SCREW SECURED COVERS. BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUIT ENTERING THE BOX AND EQUIPPED WITH PLASTER EXTENSION RINGS WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

46. LAMPS: ALL FIXTURES SHALL BE SUPPLIED WITH LAMPS OF PROPER SIZE AND TYPE.

    <u>INCANDESCENT LAMPS</u> SHALL BE NEW RATED 130 VOLTS, 60 CYCLES, AC OPERATION AND SHALL BE GENERAL SERVICE INSIDE FROSTED UNLESS SPECIFICALLY NOTED OTHERWISE.

    <u>FLUORESCENT LAMPS</u> SHALL BE RAPID START ENERGY SAVING TYPE, GENERAL ELECTRIC WATT-MISER OR EQUAL BY SYLVANIA OR PHILIPS UNLESS NOTED OTHERWISE.

    MERCURY VAPOR, METAL HALIDE AND HIGH PRESSURE SODIUM LAMPS SHALL BE AS RECOMMENDED BY THE FIXTURE MANUFACTURER AND AS INDICATED IN THE FIXTURE SCHEDULE.

47. WHERE LIGHTING FIXTURES REQUIRE THE USE OF ACRYLIC PLASTIC LENSES, THEY SHALL BE 100 PERCENT VIRGIN ACRYLIC THERMOPLASTIC NOT LESS THEN 0.125 INCHES THICK WITH AN UNPENETRATED DEPTH OF NOT LESS THAN 0.045 INCHES EQUAL TO KSH-K12 UNLESS NOTED OTHERWISE.

48. SIGNAL AND COMMUNICATIONS SYSTEMS (TELEPHONE, DATA, PUBLIC ADDRESS, TELEVISION AND CORRECTIVE CLOCK) :PROVIDE A COMPLETE AND OPERABLE EXTENSION TO THE EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. THESE SYSTEMS SHALL BE PROVIDED AS A SINGLE SUBCONTRACT UNDER THE ELECTRICAL CONTRACT. IN THE INTEREST OF MAINTENANCE CONVENIENCE AND CAPABILITY, THE NEW EQUIPMENT SHALL MATCH THAT OF EXISTING SYSTEMS AS INSTALLED IN ADJACENT AREAS. ALL EQUIPMENT AND CABLE SHALL BE PROVIDED BY THE AUTHORIZED DISTRIBUTOR. PROVIDE ALL BACKBOXES PER MANUFACTURER'S REQUIREMENTS. SUBMIT ENGINEERED SHOP DRAWINGS FOR EACH SIGNAL AND COMMUNICATION SYSTEM TO THE ARCHITECT FOR REVIEW.

49. WHERE CONDUIT ENTERS PANEL, PROVIDE GROUNDING CONDUCTOR BONDING CONDUIT GROUNDING BUSHING TO PANEL GROUND.

50. PROVIDE SOUND INSULATION AT ALL CONDUIT PENETRATIONS AT SOUND BARRIER RATED WALLS, TYPICAL U.N.O.

51. COORDINATE WITH ARCHITECTURAL WALL FINISHES FOR TACKABLE WALL COVER LOCATIONS AND PROVIDE EXTENSION RINGS AS REQUIRED SO THAT FACE OF PLATE IS FLUSH WITH OUTLET BOX.

52. CONTRACTOR SHALL PROGRAM IN ACTUAL ROOM NUMBERS, (NOT ARCHITECTURAL ROOM NUMBERS,) PROVIDED BY SCHOOL DISTRICT AT END OF PROJECT ON ALL AS-BUILT DRAWINGS AND EQUIPMENT SYSTEMS PROGRAMMING FILES AND CONTROL PANELS. DEVICE CODE OF ALL SENSORS SHALL BE PROVIDED TO SCHOOL DISTRICT.

53. PROVIDE WHITE LAMICOID NAME PLATES WITH SINGLE BLACK 5/16" LETTERING FOR ALL NEW AND EXISTING EQUIPMENT (PANEL BOARDS, TRANSFORMERS, DISCONNECT, ETC) AS SHOWN.
    FED FROM ________
    VOLTAGE ______PHASE______WIRE
    PANEL NAME_______

54. THE SEISMIC ANCHORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENT SHALL CONFORM TO C.C.R. TITLE 24, 2001 CBC SECTION 1632A AND TABLE 16A-O. ANCHORAGE DETAILS FOR ROOF AND FLOOR MOUNTED EQUIPMENT SHALL BE SHOWN ON PLANS. WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF MECHANICAL OR ELECTRICAL ENGINEER AND THE FIELD ENGINEER OF THE DIVISION OF STATE ARCHITECT.

55. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

DEMOLITION NOTES

1. IN GENERAL, THE DEMOLITION PLAN INDICATES ALL EXISTING EQUIPMENT TO BE REMOVED: HOWEVER, ELECTRICAL EQUIPMENT, WHETHER SHOWN ON THIS DRAWING OR NOT THAT IS LOCATED IN REMOVED WALLS, FLOORS OR CEILINGS, SHALL BE REMOVED UNLESS OTHERWISE NOTED.

2. THE CONTRACTOR SHALL VISIT THE SITE SPECIFICALLY INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THESE EXISTING CONDITIONS, AND BY SUBMITTING A BID ACCEPTS CONDITIONS UNDER WHICH HE WILL BE REQUIRED TO PERFORM HIS WORK.

3. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, RECEPTACLES, ELECTRICAL EQUIPMENT, ETC., AFFECTED BY THE REMODELED AREA. THIS WILL INCLUDE REROUTING, OR THE EXTENSION OF EXISTING CONDUIT AND FEEDERS WHERE NECESSARY TO MAINTAIN THE CONTINUITY OF EXISTING EQUIPMENT REMAINING.

4. ALL CIRCUIT NUMBERS AND EXISTING CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF HOMERUNS, AND ADJUST CIRCUIT NUMBERS ACCORDING TO EXISTING CONDITIONS IF REQUIRED.

5. EXISTING CONDUIT FEEDS UP THROUGH FLOOR SHALL BE CUT OFF AND PLUGGED FLUSH WITH FLOOR WHERE EXISTING WALLS, ETC., ARE REMOVED. REMOVE CONDUCTORS FROM THIS POINT BACK TO LAST OUTLET REMAINING IN SERVICE.

6. WHERE EXISTING WALLS HAVE BEEN REMOVED, AND THERE ARE EXISTING CONDUIT FEEDS WHICH HAVE BEEN CUT-OFF AND CAPPED FLUSH WITH FLOOR, IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND DIMENSION ALL SUCH CONDUITS ON THE "AS-BUILT" DRAWINGS UNLESS OTHERWISE NOTED.

7. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAINTAIN CONTINUITY OF AL ELECTRICAL SYSTEMS, EQUIPMENT, ETC., REMAINING IN OPERATION WHICH ARE BEING FED BY AN ABANDONED OUTLET. MAINTAINING CONTINUITY SHALL CONSIST OF REROUTING CONDUIT, WIRING, ETC., AS REQUIRED.

8. ALL ELECTRICAL FIXTURES, OUTLETS, DEVICES, ETC., THAT ARE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING CONDUIT AND WIRING BACK TO THE LAST FIXTURE, OUTLET, DEVICE, ETC., REMAINING IN SERVICE.

9. WHERE CONTRACTOR IS REQUIRED TO INSTALL NEW EQUIPMENT, CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS, ANCHORS, HARDWARE, EQUIPMENT, ETC., AS REQUIRED FOR A COMPLETE INSTALLATION.

10. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND TURN OVER REMOVED EQUIPMENT THAT THE OWNER REQUESTS IN AN "AS-FOUND" CONDITION. EQUIPMENT THAT IS TO BE TURNED OVER SHALL BE BOXED AND TAGGED TO IDENTIFY THE SPECIFIC EQUIPMENT.

11. WHERE NEW CIRCUITS ARE SHOWN TO EXISTING PANELS, INSTALL NEW BREAKERS (MINIMUM 20 AMP, SINGLE POLE) AS CALLED FOR ON DRAWINGS. IDENTIFY EACH NEW CIRCUIT ON PANEL SCHEDULE.

12. EXISTING CONDUIT MAY BE REUSED IF ADEQUATELY SIZED, BUT IN NO CASE SHALL ANY EXISTING CONDUCTORS BE REUSED.

13. IN SOME INSTANCES, IT MAY BE NECESSARY FOR THE ELECTRICAL CONTRACTOR TO TEMPORARILY RELOCATE, REROUTE, ETC., EXISTING ELECTRICAL EQUIPMENT. THIS SHALL BE DONE SO THAT THE SYSTEMS IN ALL PHASES (THOSE COMPLETED AND THOSE YET TO BEGIN), ARE IN COMPLETE, OPERABLE, CONDITION AS CONSTRUCTION PROCEEDS THROUGH EACH PHASE

14. WHERE NEW CIRCUITS ARE SHOWN CROSSING PHASING BOUNDARIES (I.E. CORRIDOR LIGHTING, ETC.) THIS CONTRACTOR SHALL CONNECT ALL EQUIPMENT, FIXTURES, ETC., IN THE PHASE WHICH IS THEN UNDER CONSTRUCTION CONTRACTOR SHALL STUB-OUT AL REQUIRED CONDUIT AND WIRING ACROSS PHASE BOUNDARIES: THEN, PICK UP AND EXTEND THESE CONDUIT RUNS WHEN CONSTRUCTION BEGINS IN THE ADJACENT PHASE.

15. DURING EACH PHASE OF DEMOLITION, ALL CIRCUITS FROM EXISTING PANELS WHICH FEED AREAS OUTSIDE THE BOUNDARIES OF THAT PHASE, SHALL BE MAINTAINED.

16. PANELS OR TERMINAL CABINETS WHICH ARE LOCATED IN A WALL THAT IS TO BE DEMOLISHED, SHALL REMAIN IN AN OPERATIVE CONDITION UNTIL ALL AREAS FED BY THE RELATED PANELS HAVE BEEN DEMOLISHED. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL EQUIPMENT REQUIRED TO TEMPORARILY SUPPORT PANELS. PANELS MAY BE TEMPORARILY FREESTANDING, MOUNTED IN TEMPORARY PORTION OF WALLS TO BE DEMOLISHED LATER, ETC., CHECK WITH ARCHITECT AND ENGINEER FOR APPROVAL OF SUPPORTS. IT SHALL ALSO BE THIS CONTRACTOR'S RESPONSIBILITY TO RELOCATE AND RECONNECT ALL CIRCUITS ON A TEMPORARY BASIS IF THE PANELS, TERMINAL CABINETS, ETC., CONFLICT WITH THE NEW CONSTRUCTION PHASES, AND THEN REMOVED AFTER COMPLETION OF PHASES.

17. ALL ABANDONED OUTLETS INCLUDING LIGHT, RECEPTACLES, TELEPHONE, ETC., SHALL BE COVERED AND PATCHED TO MATCH THE FINISH OF SURROUNDING WALL OR CEILING TO THE SATISFACTION OF THE OWNER.

18. REMOVES EXISTING CABLES FROM ALL UNUSED CONDUITS BACK TO THE SOURCE, WHETHER SHOWN OR NOT. DO NOT ABANDON CABLES.

19. IN ALL EXISTING CONDUIT RUNS SHOWN TO BE REWIRED. CONTRACTOR SHALL REMOVE ALL EXISTING WIRING, COMPLETELY CLEAN AND SWAB-OUT CONDUIT AND PULL NEW WIRING AS SPECIFIED TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.

20. CONTRACTOR SHALL TAKE EVERY CARE AND PRECAUTION TO LEAVE EXISTING DATA/SYSTEM, CABLE TELEVISION & TELEPHONE SYSTEMS, ETC., AS IS IN AREAS UNLESS NOTES OTHERWISE ON DRAWINGS. EXTRA CARE SHALL BE GIVEN TO EXISTING DATA AND TELEPHONE CABLE TO AVOID DAMAGE. ALL DAMAGE TO EXISTING SYSTEMS TO REMAIN SHALL BE REPLACED TO CURRENT WORKING ORDER AT NO ADDITIONAL COST TO CONTRACT.

21. DO NOT REMOVE EXISTING FIRE ALARM DEVICES OR EQUIPMENT UNTIL NEW FIRE ALARM SYSTEM HAS BEEN APPROVED, INSTALLED, TESTED, AND ACCEPTED BY DSA OR A FIRE WATCH IS REQUIRED WHENEVER THE BUILDING (WHOLE OR PARTIAL) IS OCCUPIED. CFC ART 87.

22. ALL EXISTING ELECTRICAL EQUIPMENT, BOXES AND CONDUITS THAT INTERFERE WITH ANY NEW CONSTRUCTION SHALL BE RELOCATED OR REROUTED AND REQUIRED TO CLEAR THE NEW CONSTRUCTION. RECONNECT ALL EXISTING EQUIPMENT THAT ARE TO REMAIN TO THE NEWLY RELOCATED OR REROUTED SYSTEM TO ENSURE A SAFE AND OPERATIONAL SYSTEM.

23. CONTRACTOR SHALL REMOVE ALL EXISTING EXPOSED BOXES, CONDUITS AND ETC. THAT ARE CONNECTED TO DEMO'D EQUIPMENT.

24. EXISTING OUTLETS, DEVICES AND ETC. FED FROM DEMO'D PANELS SHALL BE BACKFED FROM NEW PANELS WHETHER SHOWN OR NOT. VERIFY CIRCUIT RATING AND PROVIDE NEW CONDUIT AND WIRES AS REQUIRED.

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KEY PLAN

AGENCY APPROVAL

IDENTIFCATION STAMP
DIV. OF THE STATE ARCHITECT
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DATE DEC 2 8 2007

PROJECT TITLE

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NO.	REVISIONS	DATE	NO.	REVISIONS	DATE

DRAWING TITLE

GENERAL NOTES

ARCHITECT SEAL

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REN. 02-24-09
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