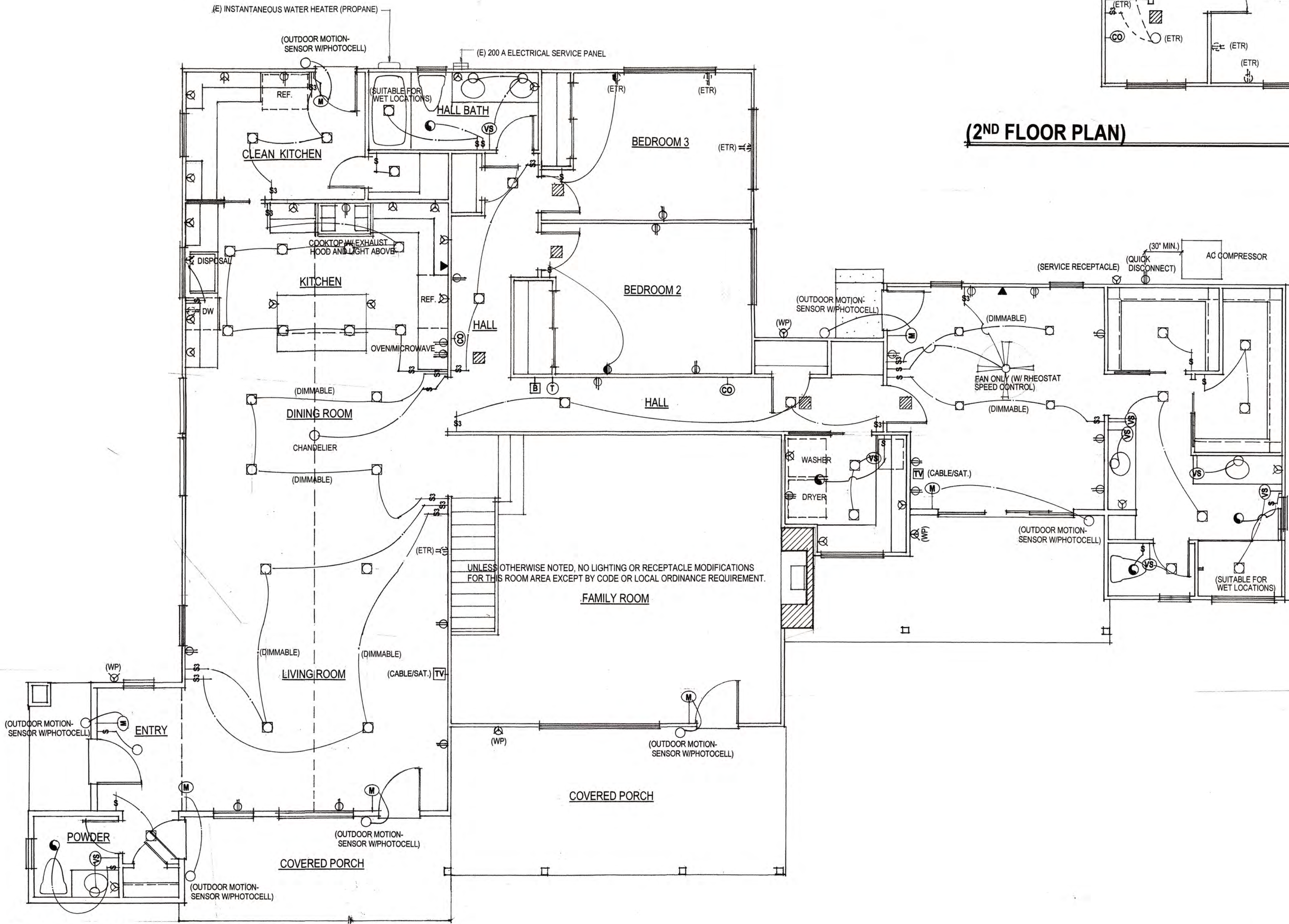


SECTION 150(K) RESIDENTIAL LIGHTING

1. LUMINAIRE REQUIREMENTS
- A. LUMINAIRE EFFICACY: ALL INSTALLED LUMINAIRES SHALL BE HIGH EFFICACY IN ACCORDANCE WITH TABLE 150.0-A
- B. BLANK ELECTRICAL BOXES: THE NUMBER OF ELECTRICAL BOXES THAT ARE MORE THAN 5 FEET ABOVE THE FINISHED FLOOR AND DO NOT CONTAIN A LUMINAIRE OR OTHER DEVICE SHALL BE NO GREATER THAN THE NUMBER OF BEDROOMS. THESE ELECTRICAL BOXES MUST BE CONTROLLED BY A DIMMER, VACANCY SENSOR CONTROL, OR FAN SPEED CONTROL.
- C. RECESSED DOWNLIGHT LUMINAIRES IN CEILINGS. LUMINAIRES RECESSED IN CEILINGS SHALL MEET ALL OF THE FOLLOWING REQUIREMENTS:
- i. BE LISTED, AS DEFINED IN SECTION 101.1, FOR ZERO CLEARANCE INSULATION CONTACT (IC) OR OTHER NATIONALLY RECOGNIZED TESTING/RATING LABORATORY; AND
- ii. HAVE A LABEL THAT CERTIFIES THE LUMINAIRE IS AIRTIGHT WITH AIR LEAKAGE LESS THAN 2.0 CFM AT 75 PASCALS WHEN TESTED IN ACCORDANCE WITH ASTM E283. AN EXHAUST FAN HOUSING SHALL NOT BE REQUIRED TO BE CERTIFIED AIRTIGHT; AND
- iii. BE SEALED WITH A GASKET OR CAULK BETWEEN THE LUMINAIRE HOUSING AND CEILING, AND SHALL HAVE ALL AIR LEAK PATHS BETWEEN CONDITIONED AND UNCONDITIONED SPACES SEALED WITH A GASKET OR CAULK; AND
- iv. FOR LUMINAIRES WITH HARDWIRED BALLASTS OR DRIVERS, ALLOW BALLAST OR DRIVER MAINTENANCE AND REPLACEMENT TO BE READILY ACCESSIBLE TO BUILDING OCCUPANTS FROM BELOW THE CEILING WITHOUT REQUIRING THE CUTTING OF HOLES IN THE CEILING; AND
- v. SHALL NOT CONTAIN SCREW BASE SOCKETS.
- D. ELECTRONIC BALLASTS. BALLASTS FOR FLUORESCENT LAMPS RATED 13 WATTS OR GREATER SHALL BE ELECTRONIC AND SHALL HAVE AN OUTPUT FREQUENCY NO LESS THAN 20 KHZ.
- E. NIGHT LIGHTS, STEP LIGHTS AND PATH LIGHTS: NIGHT LIGHTS, STEP LIGHTS AND PATH LIGHTS SHALL NOT BE REQUIRED TO COMPLY WITH TABLE 150-A OR BE CONTROLLED BY VACANCY SENSORS PROVIDED THEY ARE RATED TO CONSUME NO MORE THAN FIVE WATTS OF POWER AND EMIT MORE THAN 150 LUMENS.
- F. LIGHTING INTEGRAL TO EXHAUST FANS. LIGHTING INTEGRAL TO EXHAUST FANS SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION 150.0(K). EXCEPTION TO SECTION 150.0(K): LIGHTING INSTALLED BY THE MANUFACTURER IN KITCHEN EXHAUST FANS.
- G. SCREW BASED LUMINAIRES. SCREW BASED LUMINAIRES SHALL CONTAIN LAMPS THAT COMPLY WITH REFERENCE JOINT APPENDIX J48. EXCEPTION TO SECTION 150.0(K): LUMINAIRES WITH HARD-WIRED BALLASTS FOR HIGH INTENSITY DISCHARGE LAMPS.
- H. LIGHT SOURCES FOR ENCLOSED LUMINAIRES OR RECESSED LUMINAIRES: LAMPS AND OTHER SEPARABLE LIGHT SOURCES THAT ARE NOT COMPLIANT WITH THE J48 ELEVATED TEMPERATURE REQUIREMENTS, INCLUDING MARKING REQUIREMENTS, SHALL NOT BE INSTALLED IN ENCLOSED OR RECESSED LUMINAIRES.
- I. LIGHT SOURCES IN DRAWERS, CABINETS AND LINEN CLOSETS. LIGHT SOURCES INTERNAL TO DRAWERS, CABINETS OR LINEN CLOSETS SHALL NOT BE REQUIRED TO COMPLY WITH TABLE 150.0-A OR BE CONTROLLED BY VACANCY SENSORS PROVIDED THEY ARE RATED TO CONSUME NO MORE THAN FIVE WATTS OF POWER AND EMIT MORE THAN 150 LUMENS, AND ARE EQUIPPED WITH CONTROLS THAT AUTOMATICALLY TURN THE LIGHTING OFF WHEN THE DRAWER, CABINET OR LINEN CLOSET IS CLOSED.
2. INTERIOR LIGHT SWITCHING DEVICES AND CONTROLS
- A. ALL FORWARD PHASE CUT DIMMERS USED WITH LED LIGHT SOURCES SHALL COMPLY WITH NEMA SSL 7A.
- B. EXHAUST FANS SHALL BE CONTROLLED SEPARATELY FROM LIGHTING SYSTEMS. EXCEPTION TO SECTION 150.0(K)2: LIGHTING INTEGRAL TO AN EXHAUST FAN MAY BE ON THE SAME SWITCH AS THE FAN PROVIDED THE LIGHTING CAN BE SWITCHED "OFF" IN ACCORDANCE WITH THE APPLICABLE PROVISIONS IN SECTION 150.0(K)2 WHILE ALLOWING THE FAN TO CONTINUE TO OPERATE.
- C. LUMINAIRES SHALL BE SWITCHED WITH READILY ACCESSIBLE CONTROLS THAT PERMIT THE LUMINAIRE TO BE MANUALLY SWITCHED "ON" OR "OFF". EXCEPTION TO SECTION 150.0(K)2: CEILING FANS MAY PROVIDE CONTROL OF INTEGRATED LIGHTING VIA A REMOTE CONTROL.
- D. LIGHTING CONTROLS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- E. NO CONTROLS SHALL BYPASS A DIMMER OR VACANCY SENSOR FUNCTION WHERE THAT DIMMER OR VACANCY SENSOR HAS BEEN INSTALLED TO COMPLY WITH SECTION 150.0(K).
- F. LIGHTING CONTROLS SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF SECTION 110.9.
- G. AN ENERGY MANAGEMENT CONTROL SYSTEM (EMCS) MAY BE USED TO COMPLY WITH DIMMER REQUIREMENTS IN SECTION 150.0(K) IF AT A MINIMUM IT PROVIDES THE FUNCTIONALITY OF THE SPECIFIED CONTROLS IN ACCORDANCE WITH SECTION 110.9, MEETS THE INSTALLATION CERTIFICATE REQUIREMENTS IN SECTION 130.4, THE EMCS REQUIREMENTS IN SECTION 130.9(a), AND COMPLIES WITH ALL OTHER APPLICABLE REQUIREMENTS IN SECTION 150.0(K)2.
- H. A MULTISCENE PROGRAMMABLE CONTROLLER MAY BE USED TO COMPLY WITH DIMMER REQUIREMENTS IN SECTION 150.0(K), IF AT A MINIMUM IT PROVIDES THE FUNCTIONALITY OF A DIMMER IN ACCORDANCE WITH SECTION 110.9, AND COMPLIES WITH ALL OTHER APPLICABLE REQUIREMENTS IN SECTION 150.0(K)2.
- I. IN BATHROOMS, GARAGES, LAUNDRY ROOMS, UTILITY ROOMS, AT LEAST ONE LUMINAIRE IN EACH OF THESE SPACES SHALL BE CONTROLLED BY AN OCCUPANT OR VACANCY SENSOR PROVIDING AUTOMATIC-OFF FUNCTIONALITY. IF AN OCCUPANT SENSOR IS INSTALLED, IT SHALL INITIALLY BE CONFIGURED TO MANUAL-ON OPERATION USING THE MANUAL CONTROL REQUIRED UNDER SECTION 150.0(K)2C.
- J. LUMINAIRES THAT ARE OR CONTAIN LIGHT SOURCES THAT MEET REFERENCE JOINT APPENDIX J48 REQUIREMENTS FOR DIMMING, AND ARE NOT CONTROLLED BY OCCUPANCY OR VACANCY SENSORS, SHALL HAVE DIMMING CONTROLS. EXCEPTION TO SECTION 150.0(K)2C: LUMINAIRES IN CLOSETS LESS THAN 70 SQUARE FEET. EXCEPTION TO SECTION 150.0(K)2C: LUMINAIRES IN HALLWAYS.
- L. UNDERCABINET LIGHTING SHALL BE CONTROLLED SEPARATELY FROM OTHER CEILING-INSTALLED LIGHTING SUCH THAT ONE CAN BE TURNED ON WITHOUT TURNING ON THE OTHER.
3. RESIDENTIAL OUTDOOR LIGHTING. IN ADDITION TO MEETING THE REQUIREMENTS OF SECTION 150.0(K)1A, LUMINAIRES PROVIDING OUTDOOR RESIDENTIAL LIGHTING SHALL MEET THE FOLLOWING REQUIREMENTS, AS APPLICABLE:
- A. FOR SINGLE-FAMILY RESIDENTIAL BUILDINGS, OUTDOOR LIGHTING PERMANENTLY MOUNTED TO A RESIDENTIAL BUILDING, OR TO OTHER BUILDINGS ON THE SAME LOT, SHALL MEET THE REQUIREMENT IN ITEM i AND THE REQUIREMENTS IN EITHER ITEM ii OR ITEM iii:
- i. CONTROLLED BY A MANUAL "ON" AND "OFF" SWITCH THAT DOES NOT OVERRIDE TO "ON" THE AUTOMATIC ACTIONS OF ITEM ii OR iii BELOW; AND
- ii. CONTROLLED BY A PHOTOCELL AND EITHER A MOTION SENSOR OR AN AUTOMATIC TIME SWITCH CONTROL; OR
- iii. CONTROLLED BY AN ASTRONOMICAL TIME CLOCK CONTROL.
- CONTROLS THAT OVERRIDE TO "ON" SHALL NOT BE ALLOWED UNLESS THE OVERRIDE AUTOMATICALLY RETURNS THE AUTOMATIC CONTROL TO ITS NORMAL OPERATION WITHIN 6 HOURS. AN ENERGY MANAGEMENT CONTROL SYSTEM THAT PROVIDES THE SPECIFIED LIGHTING FUNCTIONALITY AND COMPLIES WITH ALL REQUIREMENTS APPLICABLE TO THE SPECIFIED CONTROLS MAY BE USED TO MEET THESE REQUIREMENTS.
4. INTERNALLY ILLUMINATED ADDRESS SIGNS. INTERNALLY ILLUMINATED ADDRESS SIGNS SHALL:
- A. COMPLY WITH SECTION 140.8; OR
- B. SHALL CONSUME NO MORE THAN 5 WATTS OF POWER.

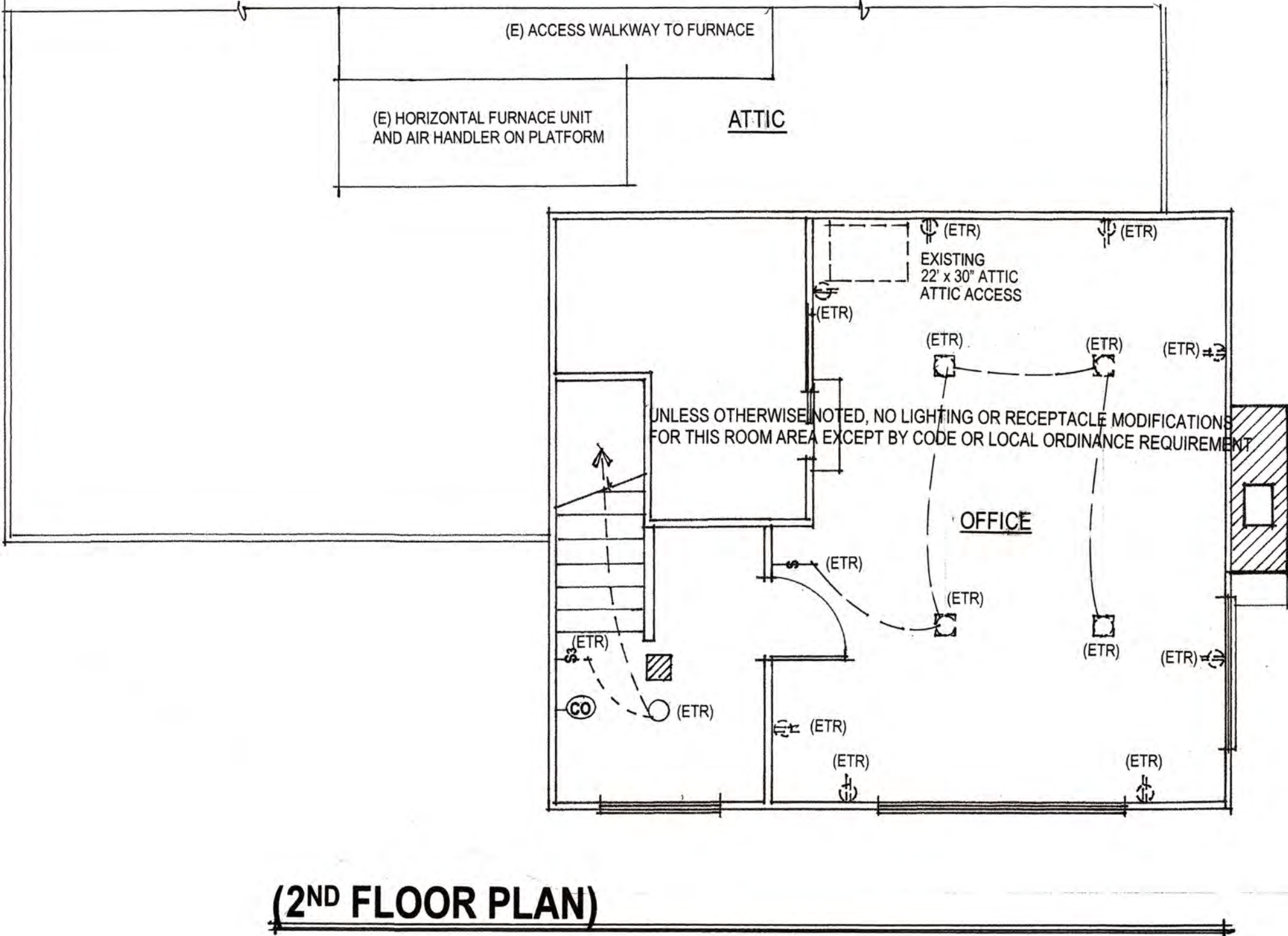


ELECTRICAL PLAN (1ST FLOOR PLAN)

- NOTES (UNLESS PREVIOUSLY INSTALLED):
1. ARC-FAULT CIRCUIT INTERRUPTER PROTECTION SHALL BE PROVIDED AS REQUIRED IN CEC 210.12 (A) (B) AND (C). SEE "NOTES FOR NEW, MODIFIED, REPLACED, OR EXTENDED 120-VOLT, SINGLE-PHASE 15- AND 20 AMPERE BRANCH CIRCUITS".
2. CARBON MONOXIDE ALARMS SHALL COMPLY WITH SECTION R315.
3. SMOKE ALARMS SHALL COMPLY WITH CEC 210.12. THE SMOKE ALARM SHALL BE UL 217 / NFPA 72 LISTED AND INSTALLED A MINIMUM 3' HORIZONTAL DISTANCE FROM BATHROOM DOOR OPENINGS OR DUCT REGISTERS).

- NOTES FOR NEW, MODIFIED, REPLACED, OR EXTENDED 120-VOLT, SINGLE-PHASE 15- AND 20 AMPERE BRANCH CIRCUITS:
1. CEC 210.12 (A): ALL 120-VOLT SINGLE-PHASE 15- AND 20 AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. CEC 210.12 IN ANY OF THE AREAS SPECIFIED IN 210.12 (A), WHERE BRANCH-CIRCUIT WIRING IS MODIFIED, REPLACED OR EXTENDED, THE BRANCH-CIRCUIT SHALL BE PROTECTED BY ONE OF THE FOLLOWING:
1. A LISTED COMBINATION-TYPE AFCI LOCATED AT THE ORIGIN OF THE BRANCH CIRCUIT.
2. A LISTED OUTLET BRANCH-CIRCUIT TYPE AFCI LOCATED AT THE FIRST RECEPTACLE OUTLET OF THE EXISTING BRANCH CIRCUIT.

3. CEC 406.4 (D)(5): LISTED TAMPER-RESISTANT RECEPTACLES SHALL BE PROVIDED WHERE REPLACEMENTS ARE MADE AT RECEPTACLE OUTLETS THAT ARE REQUIRED TO BE TAMPER-RESISTANT ELSEWHERE IN THE ELECTRICAL CODE.



(2ND FLOOR PLAN)

ELECTRICAL SYMBOLS (REFER TO SHEET G2 FOR "GENERAL ELECTRICAL NOTES" OR CHAPTER 6 OF THE 2019 RESIDENTIAL COMPLIANCE MANUAL)

- ⚡ ELECTRICAL SERVICE PANEL
- S SINGLE POLE SWITCH
- S THREE-WAY SWITCH
- 3 FOUR-WAY SWITCH
- S DIMMER SWITCH/COMPLIANCE PER 150.0(K), NEMA SSL 7A
- VS VACANCY SENSOR : MANUAL-ON/AUTO-OFF OCCUPANT SENSOR SWITCH
- M OUTDOOR SWITCHING: MANUAL ON/OFF W/ PHOTOCELL AND MOTION SENSOR AND ADDITIONAL AUTO CONTROL TYPE
- HIGH EFFICACY LUMINAIRE (CEILING OR WALL MOUNT)
- RECESSED HIGH EFFICACY LUMINAIRE (J48- CERTIFIED NON-SCREW BASED)
- ⦿ 110V SINGLE RECEPTACLE
- ⦿ 110V DUPLEX RECEPTACLE
- ⦿ 110V DUPLEX RECEPTACLE (FLOOR MOUNT)
- ⦿ 110V DUPLEX RECEPTACLE: GROUND-FAULT CIRCUIT INTERRUPTER PROTECTED
- ⦿ 110V DUPLEX RECEPTACLE (1/2 SWITCHED / 1/2 HOT)
- ⦿ 110V DUPLEX RECEPTACLE: GFCI PROTECTED / (WP) WEATHERPROOF
- ⦿ 220V RECEPTACLE OR PER APPLIANCE
- EV 208/240 VOLT ELECTRIC VEHICLE CHARGING RECEPTACLE
- ☼ INTERCONNECTED SMOKE DETECTOR W/ BATTERY BACK-UP
- CO INTERCONNECTED CARBON MONOXIDE DETECTOR W/ BATTERY BACK-UP
- B BUTTON: DOOR CHIME, GARAGE DOOR OR SIM. DOOR CHIME
- ☼ ENERGY STAR RATED EXHAUST FAN W/ HUMIDITY SENSOR SWITCH AT HIGH MOISTURE SOURCE FIXTURE
- ⦿ CEILING FAN: FAN RATED SWITCH DIMMER OR FAN RATED RHEOSTAT SPEED CONTROL
- T THERMOSTAT
- TV TV, CABLE OR SATELLITE JACK TELEPHONE
- (ETR) EXISTING WINDOW, DOOR, FIXTURE OR CIRCUIT "TO REMAIN"

REVISIONS

Description	Date

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THIS: ELECTRICAL PLAN

A MASTER BEDROOM, BATH, LIVING ROOM AND ENTRY
ADDITION AND KITCHEN/REAR PORCH REMODEL FOR THE
SOLOMAN RESIDENCE
1981 ROCKY SPRINGS ROAD
EL DORADO HILLS, CA 95762
APN: 126-130-018-000

Date:

Drawn:

Job No:

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