

PURPOSE AND SCOPE:

THIS DOCUMENT CONTAINS INFORMATION RELATING TO THE PLACEMENT OF PAD MOUNTED ELECTRICAL EQUIPMENT. THIS IS A GUIDE FOR DETERMINING THE MINIMUM REQUIREMENTS FOR EACH SPECIFIC INSTALLATION.

CLEARANCES:

1. CLEARANCES FROM BUILDING WALLS (SEE SHT. 6) - OIL FILLED PAD MOUNTED EQUIPMENT SHALL HAVE THE FOLLOWING CLEARANCES:
 - A. 3 FEET MINIMUM FROM ANY BUILDING WALL TO THE EDGE OF THE PAD. THIS CLEARANCE MAY BE REDUCED TO 2 FEET IF THE BUILDING SURFACE IS NONCOMBUSTIBLE, WITH APPROVAL OF ELECTRIC UTILITY ENGINEERING.
2. DOORWAY AND WINDOW CLEARANCE (SEE SHT. 6) - PAD MOUNTED EQUIPMENT SHALL NOT BE PLACED WHERE IT IMPEDES THE FLOW OF AIR OR TRAFFIC THROUGH A DOORWAY OR WINDOW. CLEARANCE SHALL BE 10 FEET RADIALY FROM THE DOORWAY OR WINDOW TO THE CLOSEST EDGE OF THE PAD.
3. VERTICAL CLEARANCE FROM OVERHANGS (SEE SHT. 7) - TO PROVIDE SPACE FOR HOISTING EQUIPMENT SO THAT IT CAN BE REPLACED, THE FOLLOWING VERTICAL CLEARANCES FROM THE TOP OF THE PAD ARE REQUIRED:
 - A. 20 FEET MINIMUM FOR 1Ø PAD MOUNTED EQUIPMENT.
 - B. 30 FEET MINIMUM FOR 3Ø PAD MOUNT EQUIPMENT.
 - C. WHEN REQUIRED FOR INSTALLATIONS SUCH AS IN DRY VAULTS, THE CLEARANCES FOR PAD MOUNT EQUIPMENT MAY BE REDUCED TO 10 FEET FROM THE TOP OF THE PAD. THIS REDUCED CLEARANCE WILL GREATLY INCREASE THE REPLACEMENT TIME, SINCE THE EQUIPMENT MUST BE JACKED AND ROLLED OUT TO A POSITION WHERE THE CLEARANCE IS ADEQUATE TO HOIST IT.

APPROVED _____ 2008 ENGINEER _____ DRAWN BY _____ CHECKED BY PV	ENGINEERING STANDARD PAD MOUNT CLEARANCE REQUIREMENTS			
	CITY OF PALO ALTO CALIFORNIA	1. 09/08 REV DATE	REVISED NOTES 1 AND 2 DESCRIPTION	TT APPR
		NTS	DT-CL-U-1031	1 OF 9
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HORIZONTAL WORK SPACE REQUIREMENTS:

- 4. CLEAR AND LEVEL WORK AREAS ARE REQUIRED AROUND PAD MOUNTED EQUIPMENT TO PROVIDE A SAFE WORKING SPACE TO OPERATE AND MAINTAIN THE EQUIPMENT.

- 5. PAD MOUNTED EQUIPMENT (SEE SHT. 9):
 - A. 8 FEET MINIMUM IN FRONT OF ALL EQUIPMENT DOORS TO PROVIDE ROOM TO OPERATE WITH HOT STICKS.

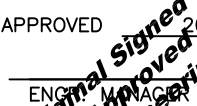
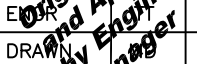
 - B. 3 FEET MINIMUM FROM NON-OPERABLE SIDES. THIS CLEARANCE MAY BE REDUCED WITH APPROVAL BY THE ELECTRICAL ENGINEERING DEPARTMENT FOR LANDSCAPING OBSTRUCTIONS (DECORATIVE WALLS, PLANTERS, ROCKS, ETC.) THAT MAY BE PLACED NEXT TO THE PAD ON NON OPERABLE SIDES.

PROTECTION FROM VEHICULAR TRAFFIC:

- 6. PHYSICAL PROTECTION FROM VEHICULAR TRAFFIC SHALL BE PROVIDED IN ACCORDANCE WITH THE LEVEL OF EXPOSURE. BARRIER POSTS, ETC., ARE INTENDED TO PROVIDE REASONABLE WARNING FROM ACCIDENTAL VEHICULAR CONTACT, RATHER THAN PREVENTING ALL POSSIBLE CONTACT. WHEN THE ELECTRIC ENGINEERING, OR OPERATIONS, DEPARTMENT DETERMINES IT NECESSARY, THE APPLICANT WILL PROVIDE PHYSICAL PROTECTION AS SPECIFIED BY THE CITY. (SEE DT-SS-C-1005)

- 7. PAD MOUNTED EQUIPMENT HAVING THE FOLLOWING SET BACKS MAY NOT REQUIRE THE CUSTOMER TO PROVIDE ADDITIONAL PHYSICAL PROTECTION:
 - A. SINGLE-FAMILY, DUPLEX AND OTHER LOW DENSITY RESIDENTIAL AREAS: 3 FEET MINIMUM FROM THE EDGE OF THE CURB.

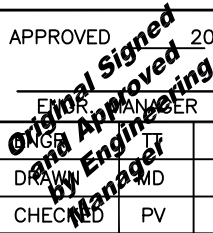
 - B. COMMERCIAL, APARTMENT, CONDOMINIUM AND OTHER HIGH DENSITY AREAS: 9 FEET FROM THE EDGE OF THE ROAD OR CURB DUE TO HIGH VEHICULAR TRAFFIC AND FREQUENT TRUCK BACKING. THE DESIGN OF THE PARTICULAR LAYOUT MAY, OF COURSE, CALL FOR AN INCREASE OR DECREASE IN THESE DIMENSIONS. FOR EXAMPLE, A 3 FOOT SET BACK IS OFTEN ADEQUATE FOR PARTS OF THE COMMERCIAL PARKING LOTS WHERE TRAFFIC FLOW IS CONSTRAINED AND BACKING PERPENDICULAR TO CURB IS UNLIKELY.

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8. STEEL POSTS ARE THE STANDARD MEANS FOR PROVIDING SUCH PHYSICAL PROTECTION. SUITABLE ALTERNATIVES TO THESE PROTECTIVE POSTS MAY BE PROPOSED BY THE APPLICANT FOR CITY APPROVAL.
9. ALL BARRIER POSTS AT THE SAME INSTALLATION SITE WILL BE THE SAME HEIGHT AND SHALL BE PAINTED PADMOUNT GREEN.
10. A BUILDING CAN BE CONSIDERED AS PHYSICAL PROTECTION PROVIDED IT IS LOCATED AT A POINT WHERE A POST WOULD BE NORMALLY REQUIRED.
11. LOCATE BARRIER POSTS SO THAT THEY DO NOT INTERFERE WITH OPENING OF THE EQUIPMENT'S DOORS. CERTAIN TYPES OF PAD MOUNTED EQUIPMENT HAVE DOORS IN BOTH FRONT AND BACK AND REQUIRE 8'-0" MINIMUM CLEARANCE AND CAREFUL BARRIER POST PLACEMENT TO ALLOW THE DOORS TO BE OPENED.
12. USE REMOVABLE POSTS WHEN:
 - A. POSTS ARE INSTALLED LESS THAN 8 FEET IN FRONT OF THE EQUIPMENT'S DOORS.
 - B. WHERE FIXED POSTS WOULD OBSTRUCT ACCESS FOR INSTALLATION OR REPLACEMENT OF THE EQUIPMENT.

HAZARDOUS LOCATIONS:

13. THE FOLLOWING GUIDE IS TO BE USED WHEN INSTALLING PAD MOUNTED EQUIPMENT IN AREAS WHERE HAZARDOUS LIQUIDS AND GASES ARE DISPENSED OR STORED IN SEALED CONTAINERS:
 - A. LIQUIFIED FLAMMABLE GASES: DO NOT INSTALL PAD MOUNTED EQUIPMENT WITHIN 20 FEET OF A GAS DISPENSER WITHOUT CONFORMING TO THE REGULATIONS CONCERNING INSTALLATION OF ELECTRICAL EQUIPMENT IN HAZARDOUS AREAS (REFER TO ARTICLES E500-1, E500-2, E514-1 AND E514-2 OF TITLE 24, PART 3, STATE BUILDING STANDARDS).
 - B. ANY CONTAINER WHICH STORES FLAMMABLE LIQUID OR GAS WILL BE CONSIDERED EQUIVALENT TO A "COMBUSTIBLE WALL". THE MINIMUM REQUIRED CLEARANCE IS 3 FEET.

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OIL CONTAINMENT:

14. OIL ENCLOSURES ARE REQUIRED BY THE STATE OF CALIFORNIA IF PAD MOUNTED TRANSFORMERS ARE LOCATED IN AREAS WHERE OIL FROM A RUPTURED TANK COULD FLOW TOWARDS A COMBUSTIBLE SURFACE. OIL ENCLOSURES MAY CONSIST OF FIRE RESISTANT DIKES, CURBED AREAS OR BASINS, OR TRENCHES FILLED WITH COARSE CRUSHED STONE. THEY MUST BE CAPABLE OF HOLDING THE TOTAL VOLUME OF OIL CONTAINED IN THE EQUIPMENT TANK. THE CONSTRUCTION OF REQUIRED OIL CONTAINMENT FACILITIES MAY IN NO WAY IMPEDE THE REQUIRED WORK SPACE AREA. THE CUSTOMER WILL BE RESPONSIBLE FOR PROVIDING ADEQUATE OIL CONTAINMENT ENCLOSURES TO SATISFY THE REQUIREMENTS OF THE STATE OF CALIFORNIA AND ENVIRONMENTAL PROTECTION REGULATIONS.

RETAINING WALLS:

15. RETAINING WALLS SHALL BE PROVIDED WHEN THE CITY DETERMINES IT NECESSARY TO PROTECT EQUIPMENT AGAINST LANDSLIDES, DRAINAGE WASH, DRIFTING SANDS, ETC. THE APPLICANT IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THE RETAINING WALL. THE RETAINING WALL SHALL BE DESIGNED TO PROVIDE A BARRIER OF SUFFICIENT STRENGTH AND SUITABLE CONSTRUCTION TO PROVIDE ADEQUATE PROTECTION AND WORKING SPACE AROUND THE EQUIPMENT. TYPICAL EXAMPLE OF RETAINING WALL PLACEMENT ARE SHOWN IN SHT. 8 OF THIS DOCUMENT.
16. RETAINING WALLS GREATER THAN 2 FEET IN HEIGHT WILL REQUIRE A DRAIN PIPE AS SHOWN IN SHT. 8 OF THIS DOCUMENT. DRAIN PIPE SHALL BE A 3" PERFORATED PLASTIC PIPE, COVERED FIRST BY MARAFI DRAIN CLOTH, THEN BY DRAIN ROCK AND FINALLY BACKFILLED.
17. TREATED REDWOOD OR PRESSURE-TREATED DOUGLAS FIR POSTS (NOMINAL 4"x4" MINIMUM) AND PLANKS (NOMINAL 2" OR THICKER) MAY BE USED FOR RETAINING WALLS. POSTS SHOULD BE 24" OR LESS IN LENGTH AND EXTENDED AT LEAST 12" BELOW GROUND AND NOT MORE THAN 12" ABOVE GROUND.
18. THE WORKING AREA WITHIN THE RETAINING WALL WILL BE AT THE SAME LEVEL OR BELOW THE PAD BEING PROTECTED. THE AREA WILL BE KEPT WEED FREE AND COVERED WITH A DECORATIVE COVERING.

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TRUCK ACCESSIBILITY:

19. PAD MOUNTED EQUIPMENT MUST BE ACCESSIBLE TO CITY TRUCKS. TRUCKS MUST BE ABLE TO BE BACKED UP TO WITHIN 5 FEET OF THE PAD ON:

- A. A SURFACE CAPABLE OF WITHSTANDING TRUCK WEIGHT OF 24 TONS AND
- B. A PATH THAT IS A MINIMUM OF 12 FEET WIDE AND
- C. A MINIMUM VERTICAL CLEARANCE OF 14 FEET SHALL BE MAINTAINED FROM THE STREET TO THE EQUIPMENT PAD.

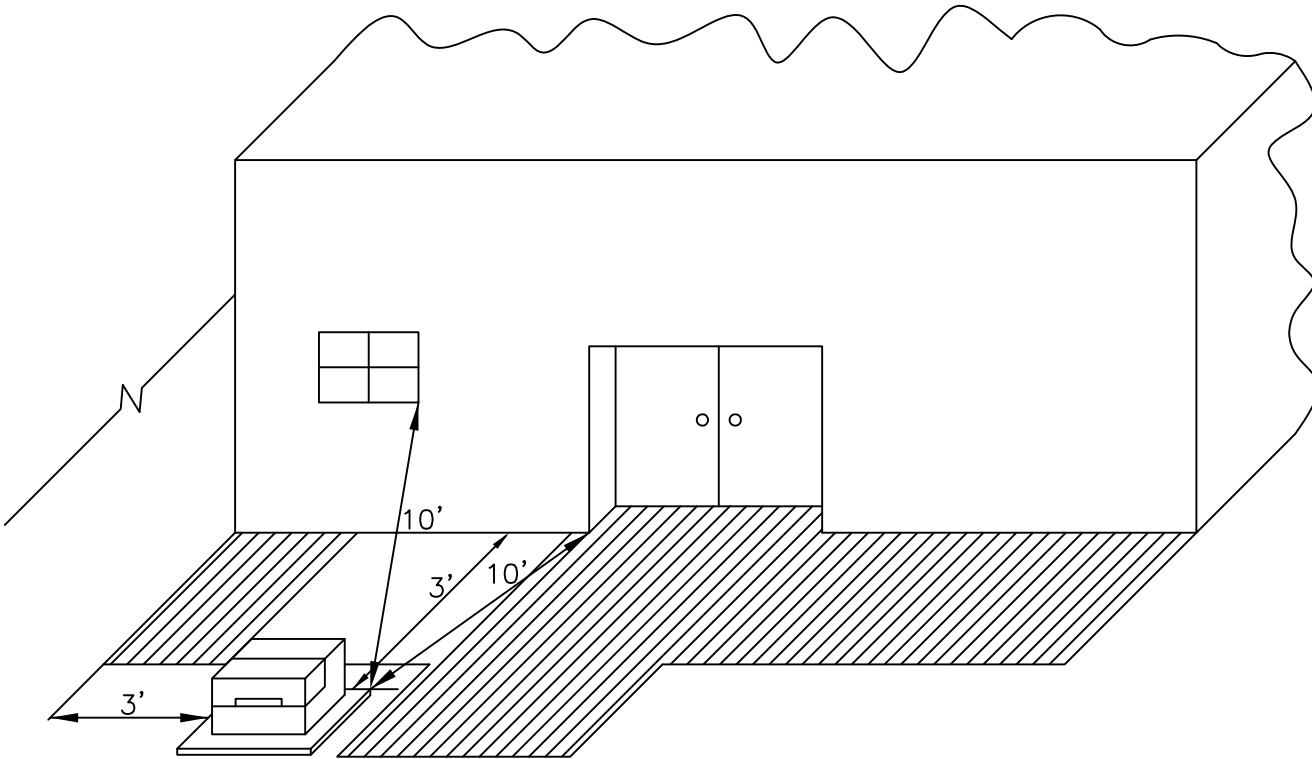
IF THE PATH TO THE EQUIPMENT PAD REQUIRES ANY TURNS BY CITY TRUCKS, THE MINIMUM REQUIREMENTS OF 12'x14' PREVIOUSLY DESCRIBED MAY NEED TO BE INCREASED. CONSULT CITY ENGINEER WHEN SUCH SITUATIONS OCCUR. FOR LOCATIONS WHERE THE STANDARD ACCESSIBILITY REQUIREMENT ARE NOT MET, CONSULT WITH THE CITY FOR OTHER OPTIONS.

FUTURE CONSTRUCTION:

20. CONSIDERATION SHOULD BE GIVEN NOT ONLY TO CONDITIONS EXISTING AT THE TIME OF INSTALLATION BUT ALSO TO POSSIBLE FUTURE STRUCTURES AND EQUIPMENT WHICH COULD INTERFERE WITH REQUIRED CLEARANCES OR ACCESSIBILITY. ON THOSE INSTALLATIONS WHERE THERE IS A HIGH PROBABILITY OF A FUTURE OBSTRUCTION, INSTALL A CLEARANCE REQUIREMENT SIGN ON THE EQUIPMENT.

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BUILDING, DOORWAY & WINDOW MINIMUM CLEARANCES
NOT TO SCALE

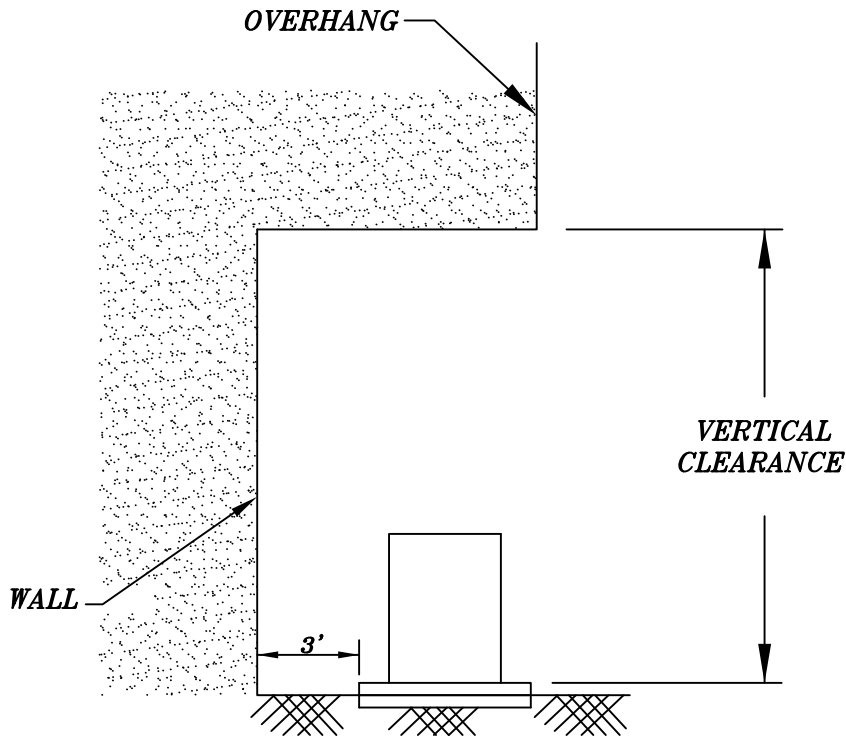
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**PAD MOUNT CLEARANCE
 REQUIREMENTS**

**CITY OF PALO ALTO
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**VERTICAL CLEARANCE
REQUIREMENTS**

VERTICAL CLEARANCE	EQUIPMENT
20'	1ϕ PAD MOUNTED
30'	3ϕ PAD MOUNTED

**MINIMUM CLEARANCES FOR PAD MOUNTED
EQUIPMENT**

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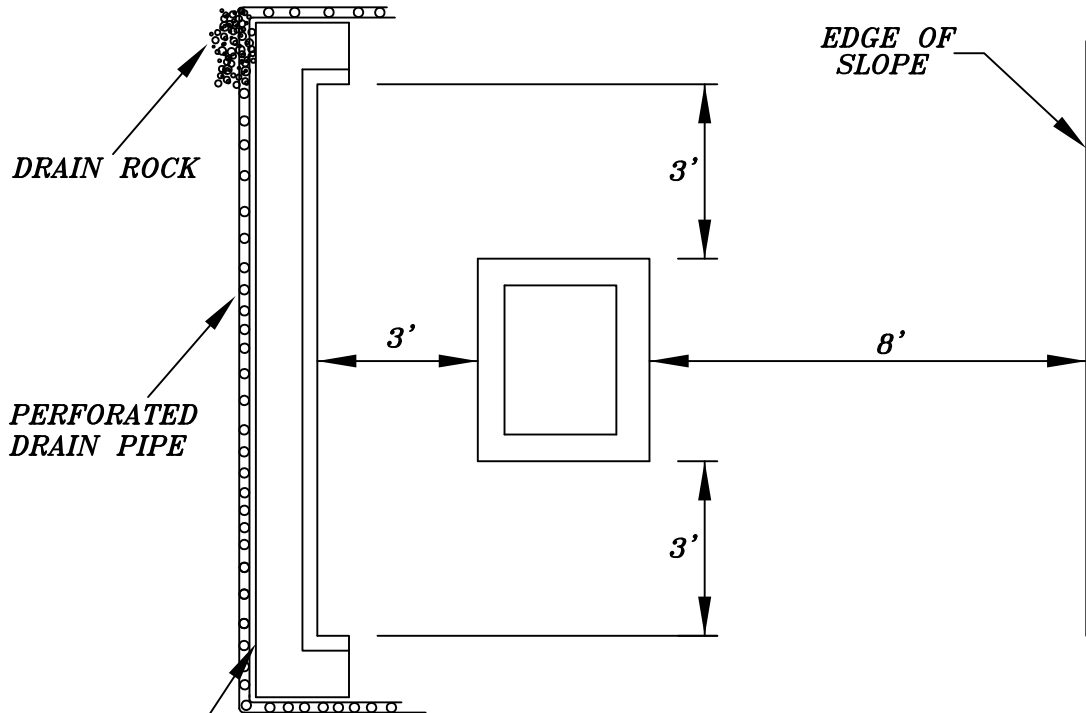
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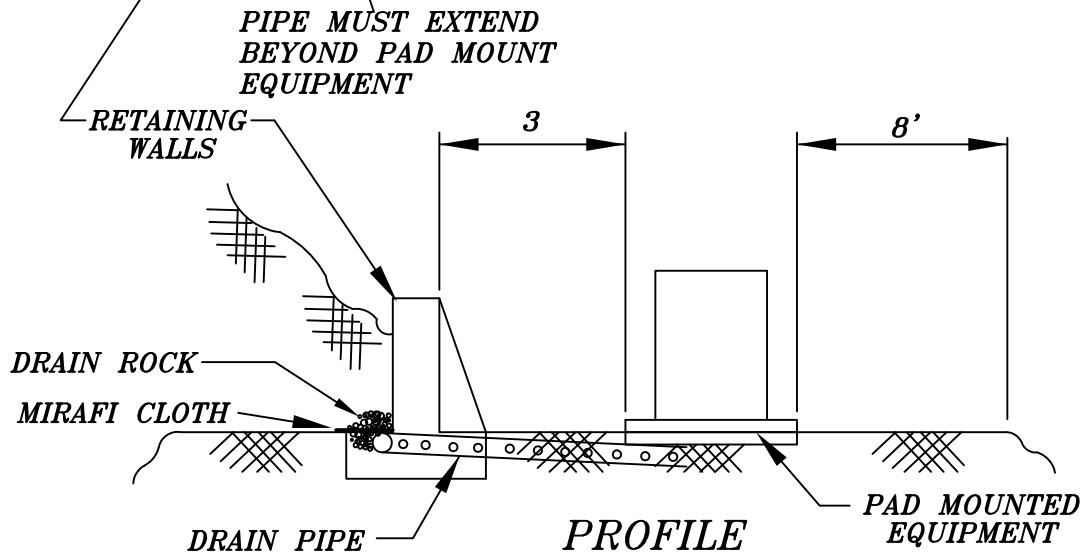
***PAD MOUNT CLEARANCE
REQUIREMENTS***

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PLAN



PROFILE

**EXAMPLE OF PAD MOUNTED EQUIPMENT
INSTALLATION ON SLOPED TERRAIN**

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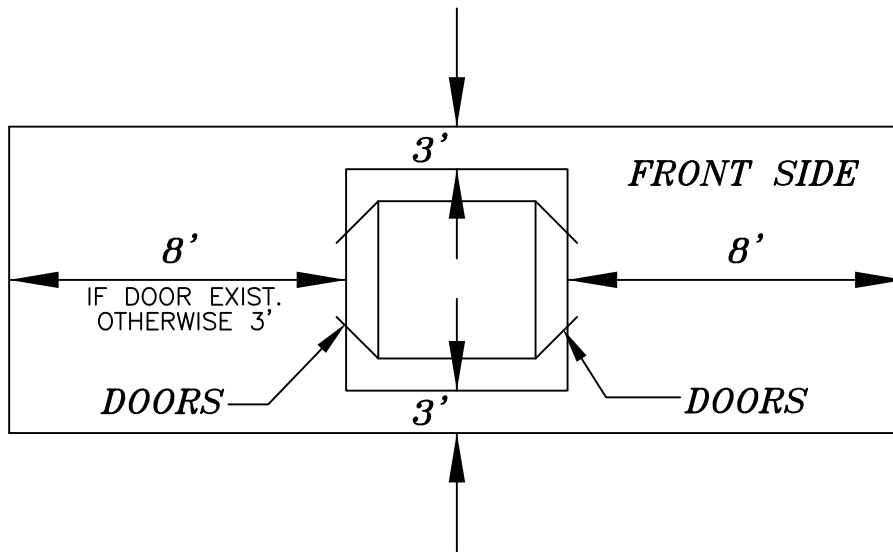
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**PAD MOUNT CLEARANCE
REQUIREMENTS**

**CITY OF PALO ALTO
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PAD MOUNTED SWITCH OR CAPACITOR



*WORK SPACE FOR PAD MOUNTED SWITCHES
AND CAPACITORS*

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*PAD MOUNT CLEARANCE
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