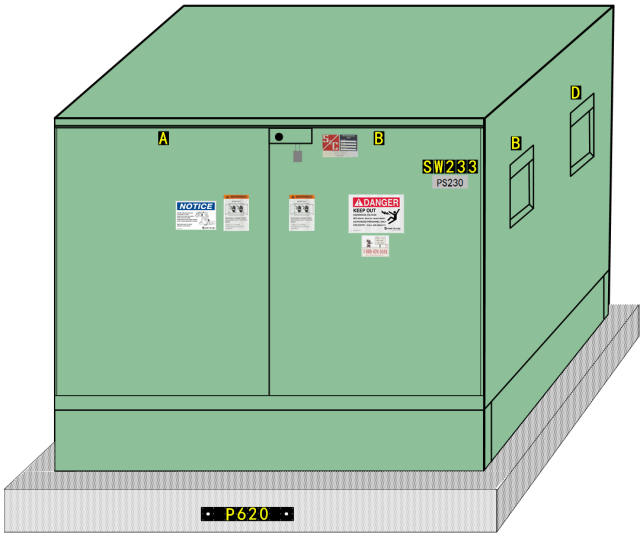
Padmount Switch Signs and Labels



1. Scope

This work practice covers the requirements for affixing signs and labels on Seattle City Light (SCL) padmount switches and their associated control cabinets.

2. Application

This work practice:

- Provides definitions for the variety of signs and labels covered in this standard.
- Establishes a uniform and consistent visual layout for padmount switch and control cabinet signs and labels.
- Provides direction for affixing signs and labels to equipment.

3. Definitions

Equipment (PS) Number – also known as the “PS” number, it is a number that follows the prefix “PS” assigned to each switch. To help explain how this number is used, a PS number could be considered the equivalent of a person’s social security number. No matter where a person lives, their social security number remains the same. PS labels are assigned, printed, and attached to the switchgear at the warehouse prior to receiving the equipment.

Switch (SW) Number – also known as the System Operations Center (SOC) Switch Number, this number follows the prefix “SOC” and indicates the switch location. To help explain how this number is used, an SOC number could be considered the equivalent of a street address. No matter who lives there, the address stays the same.

Underground (U) Switch Number – this is a switch number specifically for underground equipment. This number follows the prefix “U.”

Pad (P) Number – identifies the pad on which the switch is installed. The best practice is to affix the pad number to the pad itself. Labeling the switch enclosures with the pad number should be avoided.

Vault (V) Number – identifies the vault on which the switch is installed.

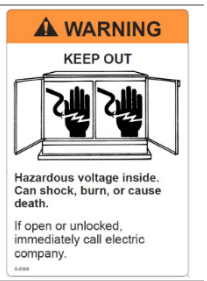
Compartment Identification Letter – consists of letters “A”, “B”, “C”, or “D” affixed to both the exterior and interior surfaces of each compartment door of a PMH-type switch. The compartment identification letter provides unique identification for each compartment of a switch. See Figure 4.1a and 4.1b for PMH switch compartment labeling. S&C Electric Vista switches do not have compartment identification letters.

Operating Handle Access Identifying Letter – consists of letters “A”, “B”, “C”, or “D” installed on top of each switch position operating handle. It identifies the operating handle that is associated with each compartment switch.

4. Signs and Labels, Layout

4.1 Signs and Labels Guide

Table 4.1. Signs and Labels Guide

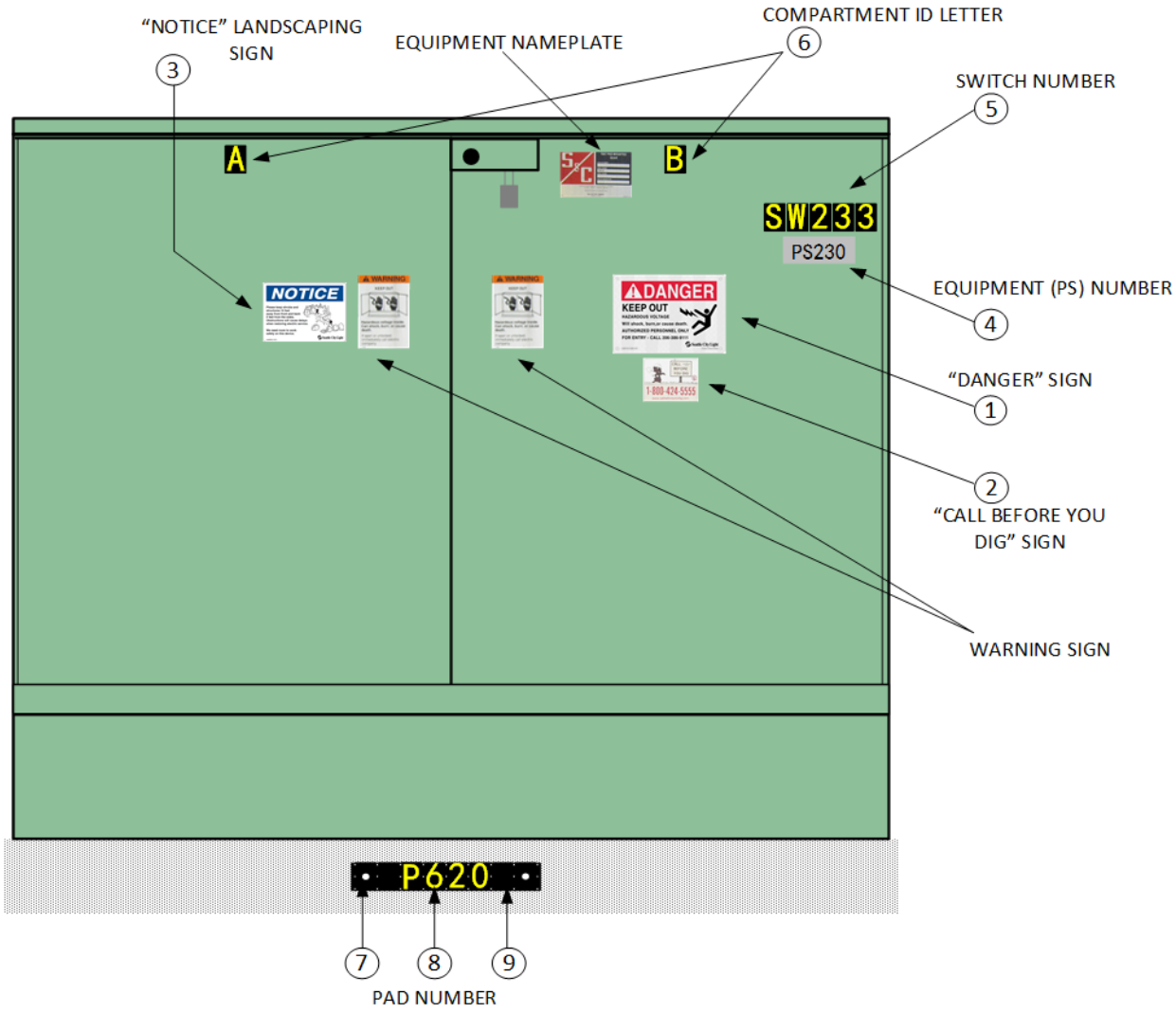
Item No.	Description	
N/A	Warning sign, supplied and affixed by manufacturer	
N/A	Equipment nameplate, supplied and affixed by manufacturer	
1	"Danger, Hazardous Voltage" sign, provided and affixed by SCL	
2	"Call Before You Dig" sign, provided and affixed by SCL	
3	"Notice, Landscaping Requirements" sign, provided and affixed by SCL	
4	Equipment (PS) number label, provided and affixed by SCL	
5	Switch Number label, provided and affixed by SCL	
6	Compartment identification letter, provided and affixed by SCL	
7	[1] Pad (P) number, provided and affixed by SCL	

[1] If switch is installed in a vault, it may have a V number instead of a P number.

4.2 Four-compartment PMH Switches

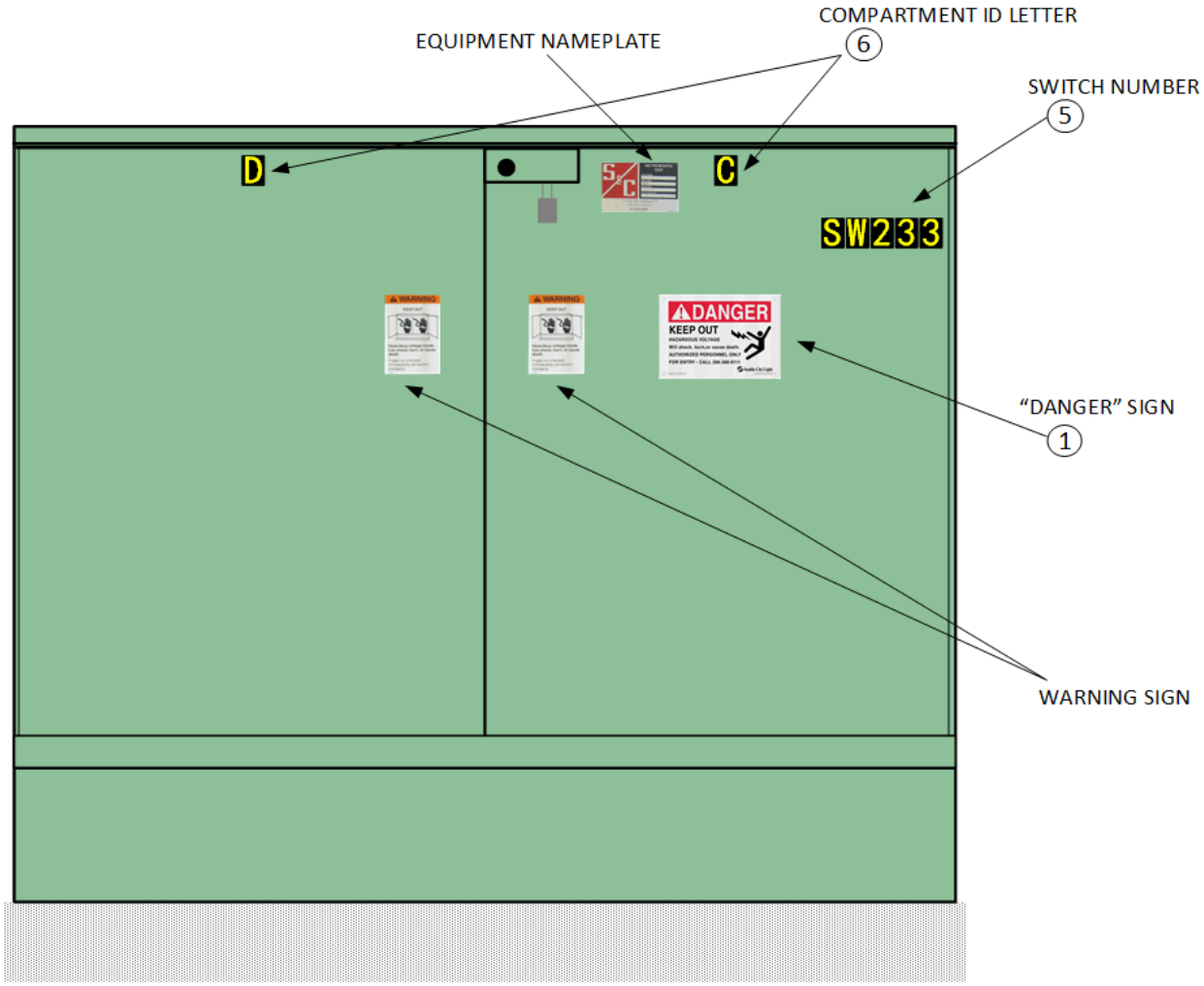
Signs and labels for four-compartment Manual, Source-Transfer, and Remote Supervisory PMH switches shall be placed as shown in figures 4.2a through 4.2e.

Figure 4.2a. Four-Compartment PMH Switch, Front View



Note: Compartment ID letters are also affixed inside each compartment door, mirroring those mounted to the exterior.

Figure 4.2b. Four-Compartment PMH Switch, Rear View



Note: Compartment ID letters are also affixed inside each compartment door, mirroring those mounted to the exterior.

Figure 4.2c. Four-Compartment PMH Switch, Left Side View

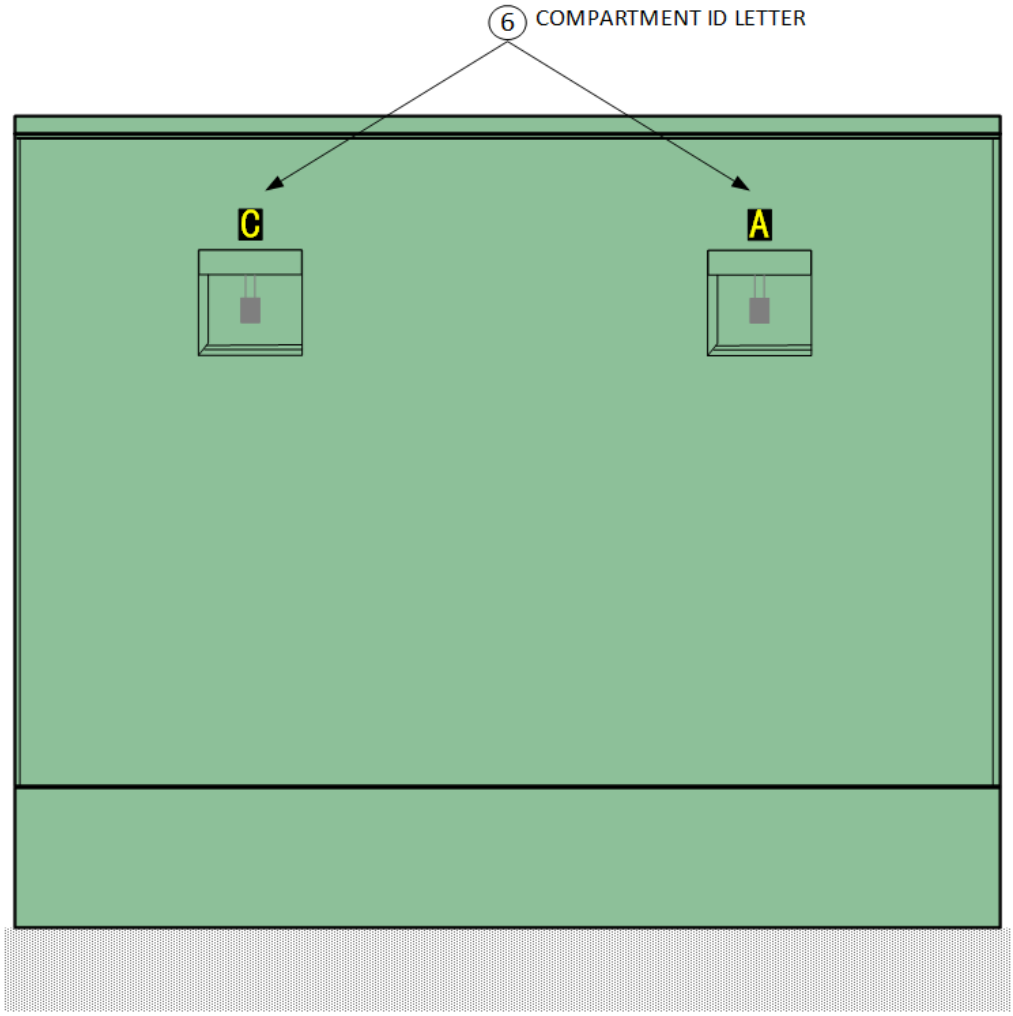


Figure 4.2d. Four-Compartment PMH Switch, Right Side View

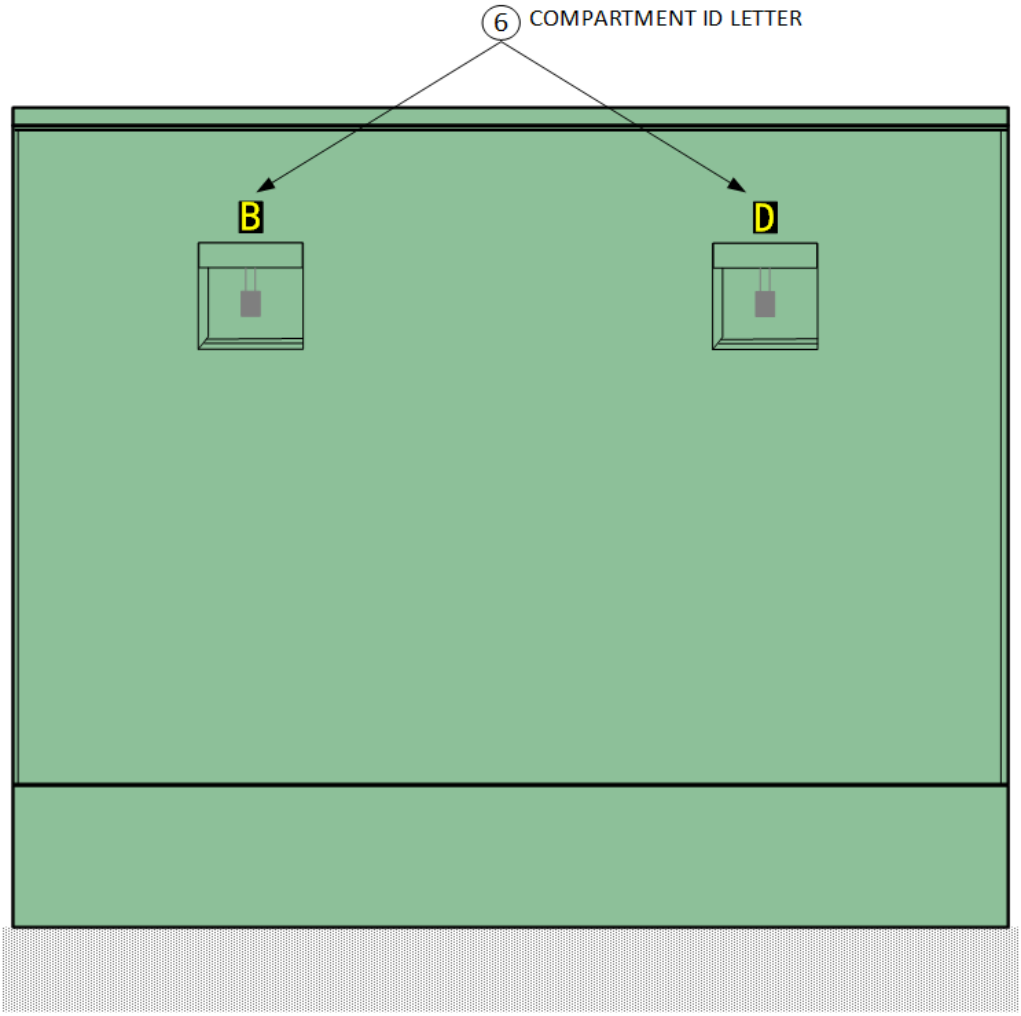
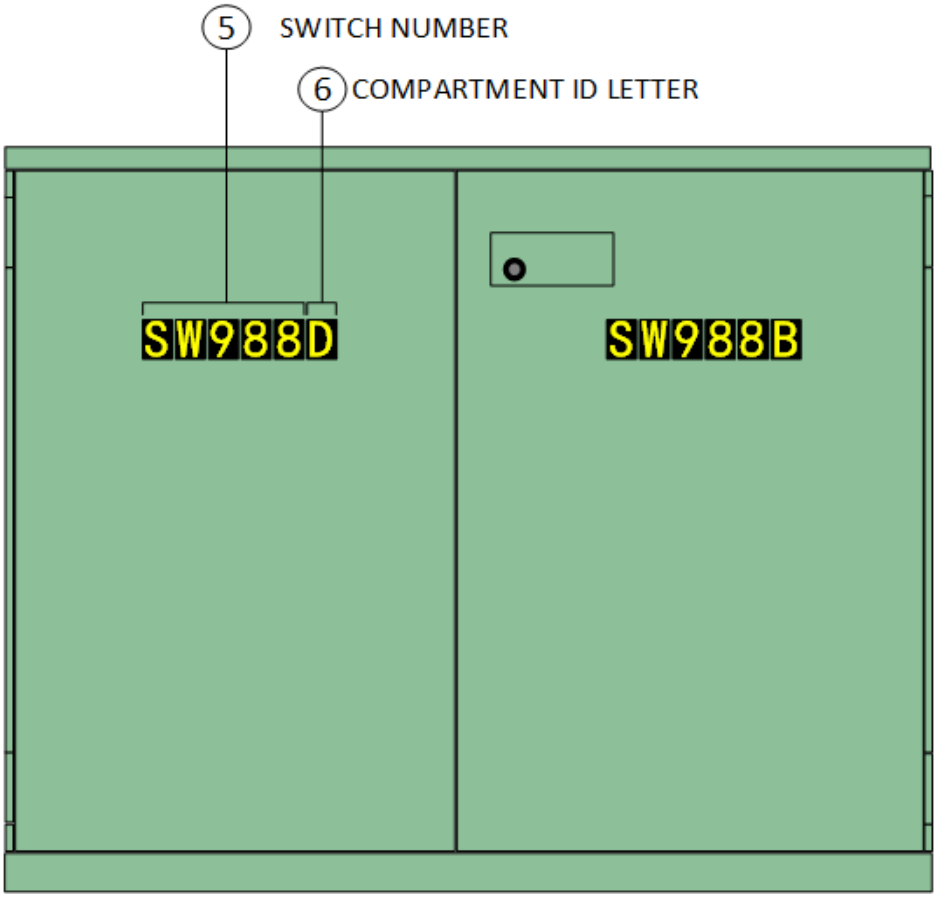


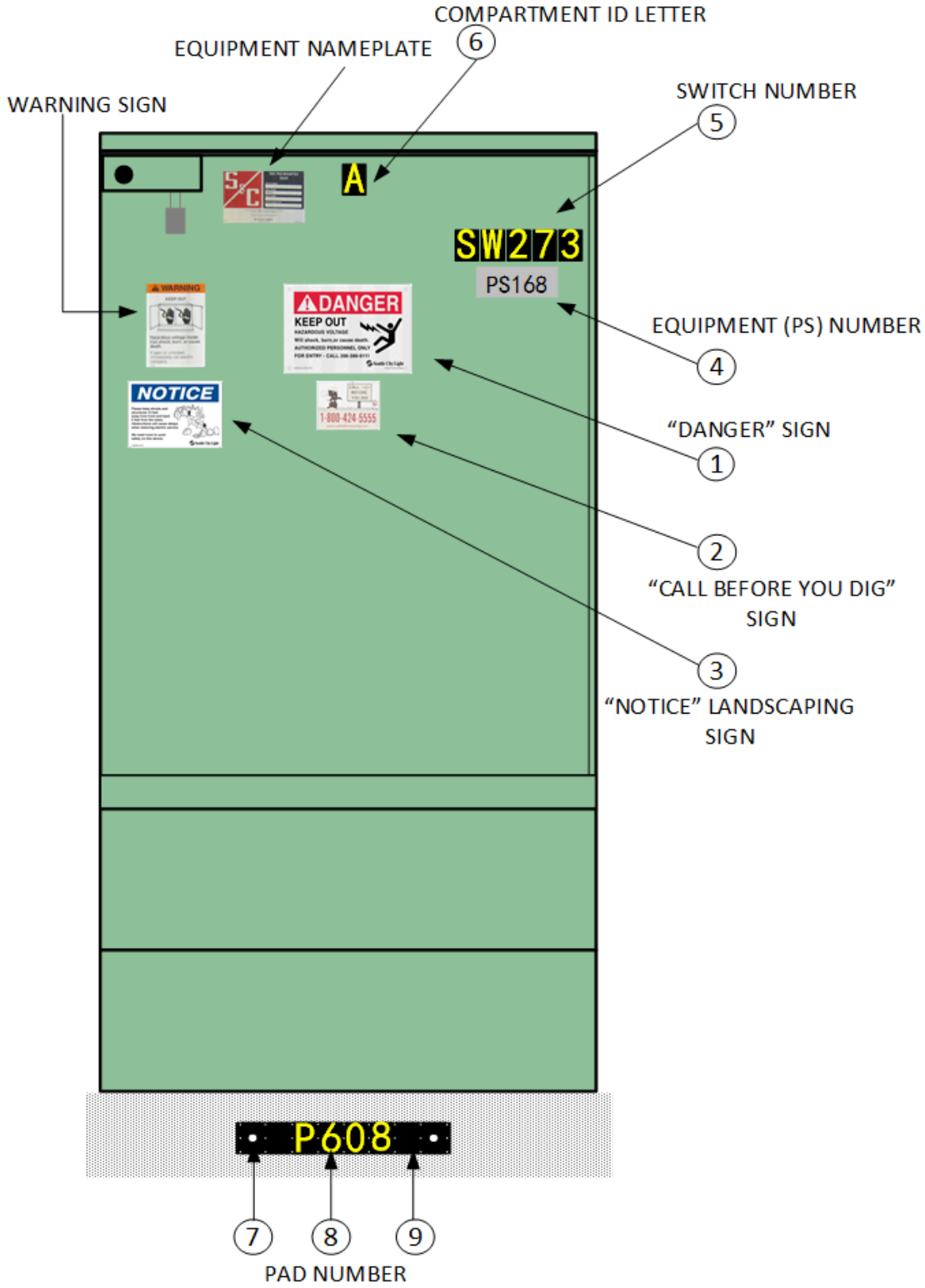
Figure 4.2e. Low Voltage Control Cabinet, Source-Transfer and Remote Supervisory PMH Switches



4.3 Two-Compartment PMH Switches

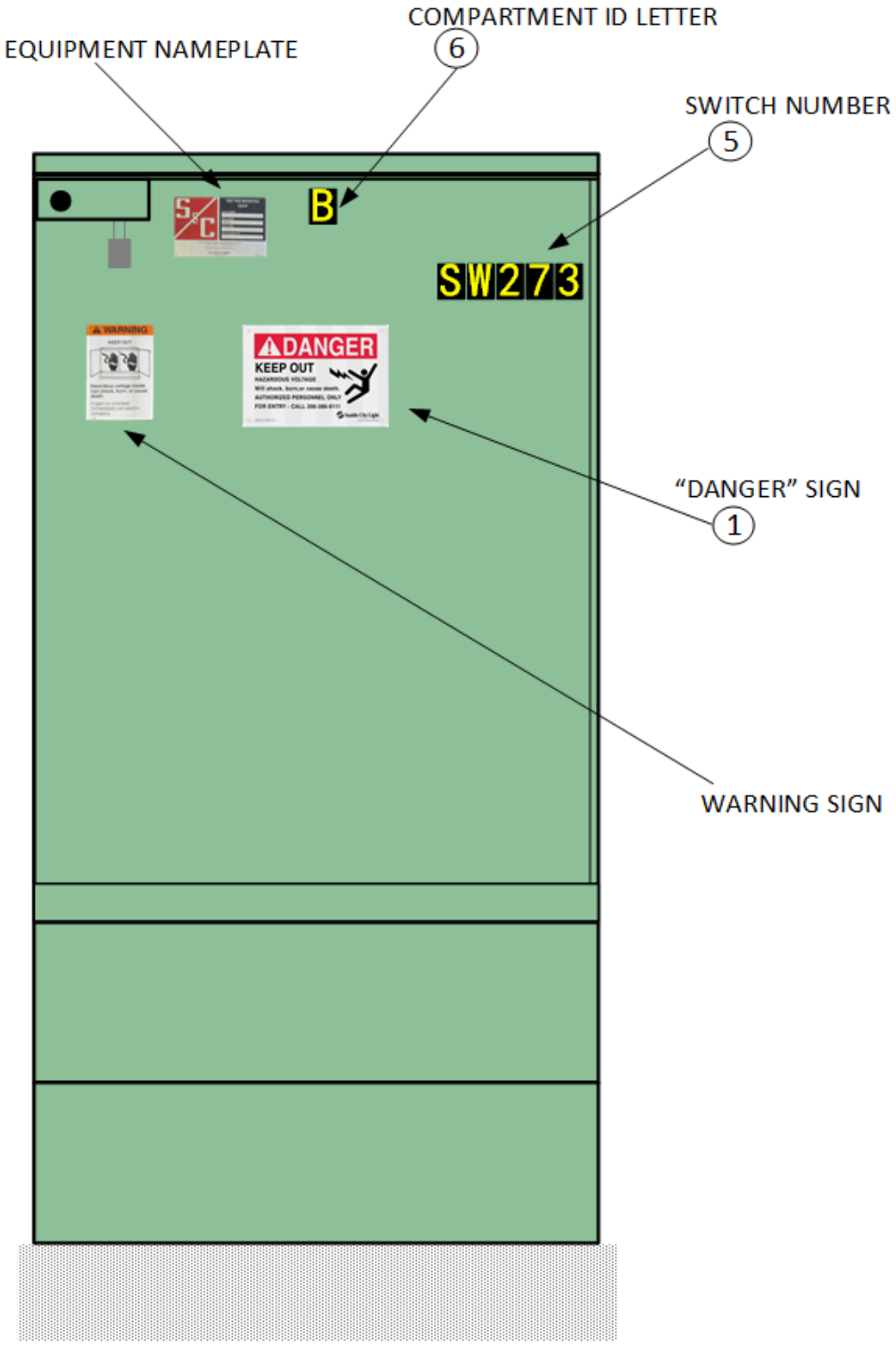
Safety signs and labels for two-compartment Manual, Source Transfer, and Remote Supervisory PMH switches shall be installed as shown in figures 4.3a through 4.3b.

Figure 4.3a. Two-Compartment PMH Switch, Front View



Note: Compartment ID letters are also affixed inside each compartment door, mirroring those mounted to the exterior.

Figure 4.3b. Two-Compartment PMH Switch, Rear View



Note: Compartment ID letters are also affixed inside each compartment door, mirroring those mounted to the exterior.

4.4 Vista Switches

Signs and labels for Manual and Remote Supervisory Vista switches and Low Voltage Enclosures (LVEs) shall be installed as shown in figures 4.4a through 4.4i.

Figure 4.4a. Remote Supervisory Vista Switch with Attached LVE, Front View

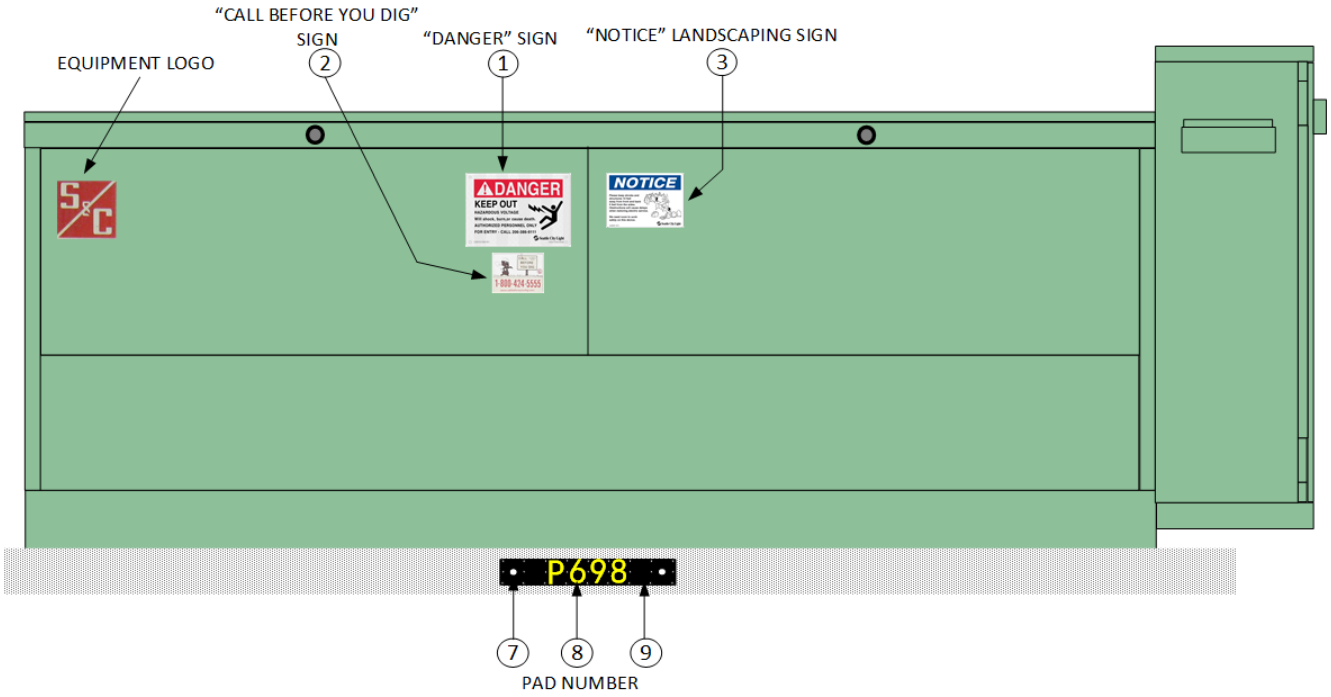


Figure 4.4b. Remote Supervisory Vista Switch with Attached LVE, Rear View

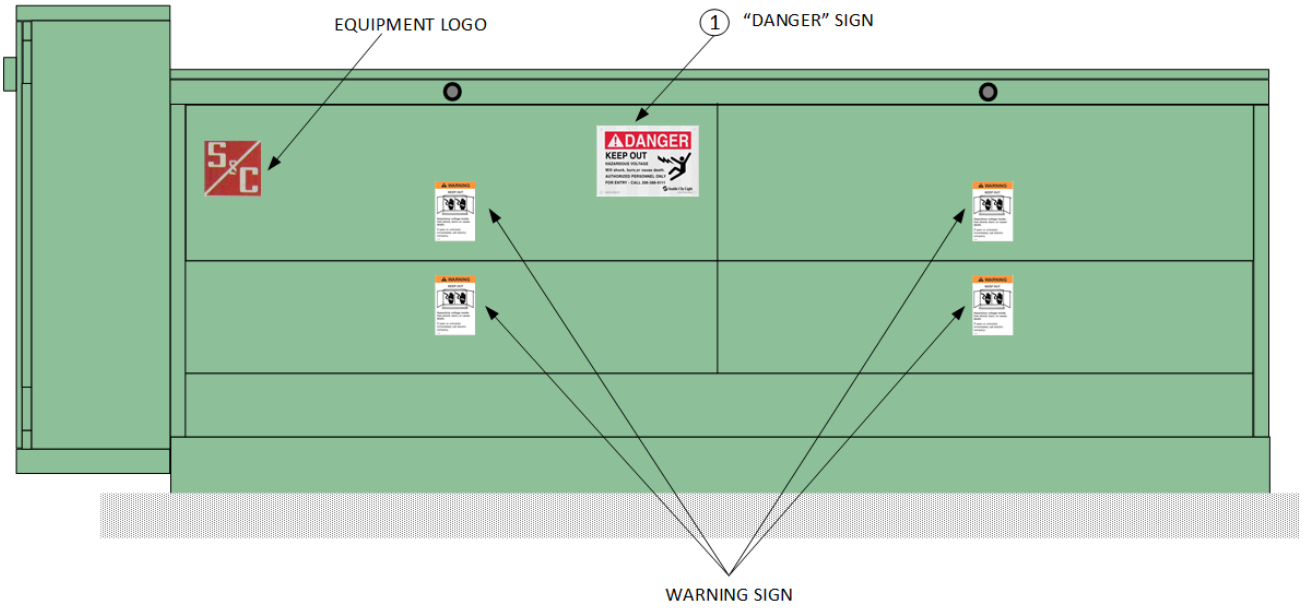


Figure 4.4c. LVE Attached to Remote Supervisory Vista Switch

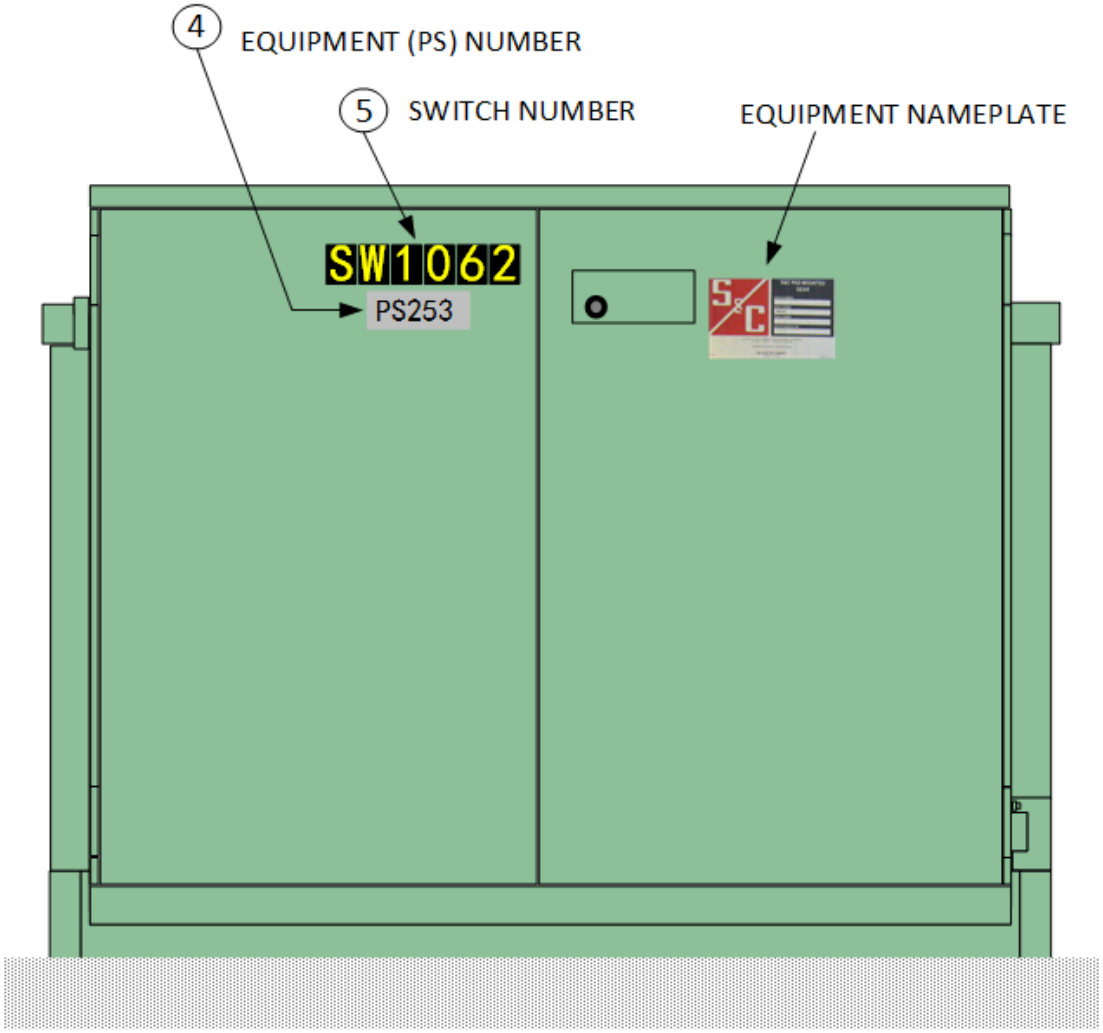


Figure 4.4d. Remote Supervisory Vista Switch with Detached LVE, Front View

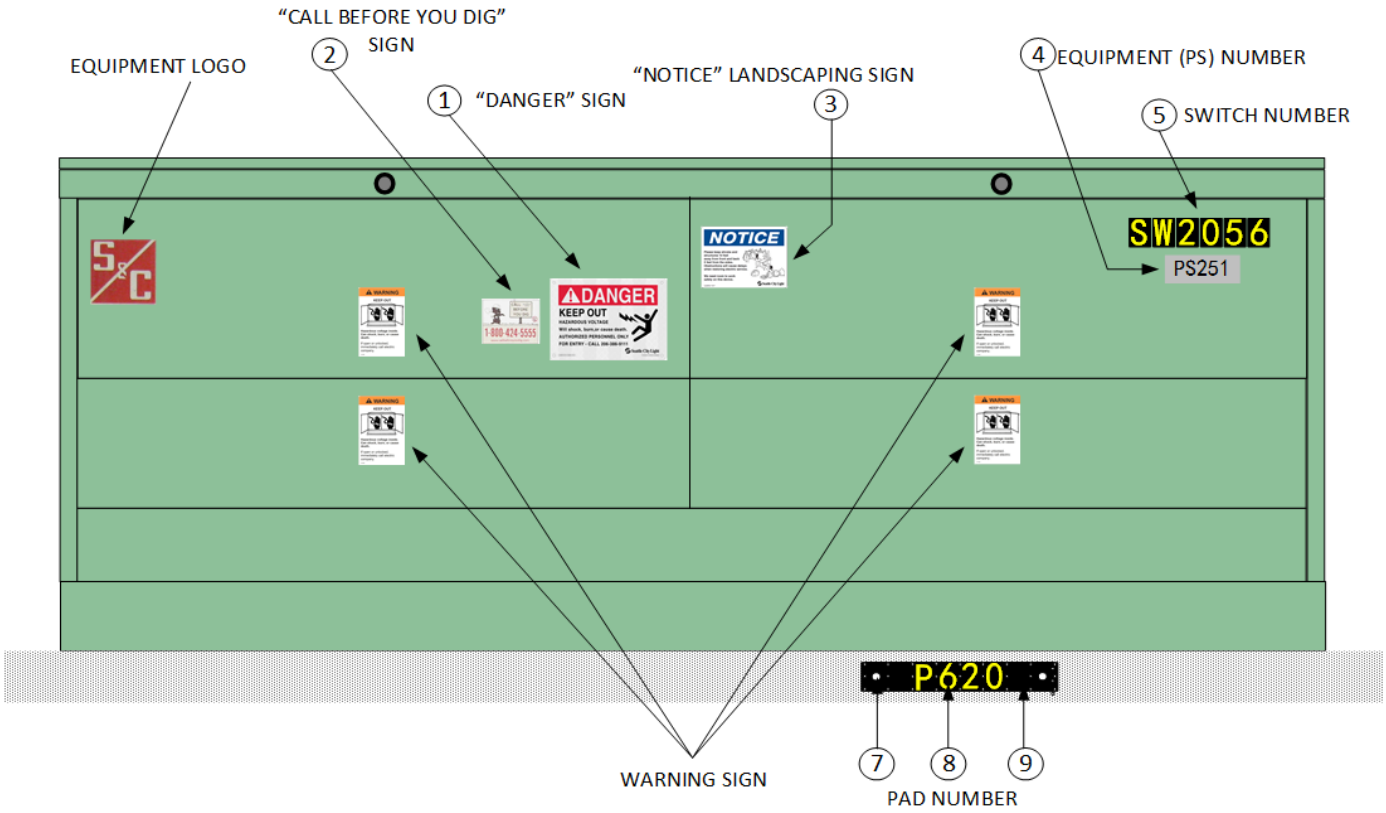


Figure 4.4e. Remote Supervisory Vista Switch with Detached LVE, Rear View

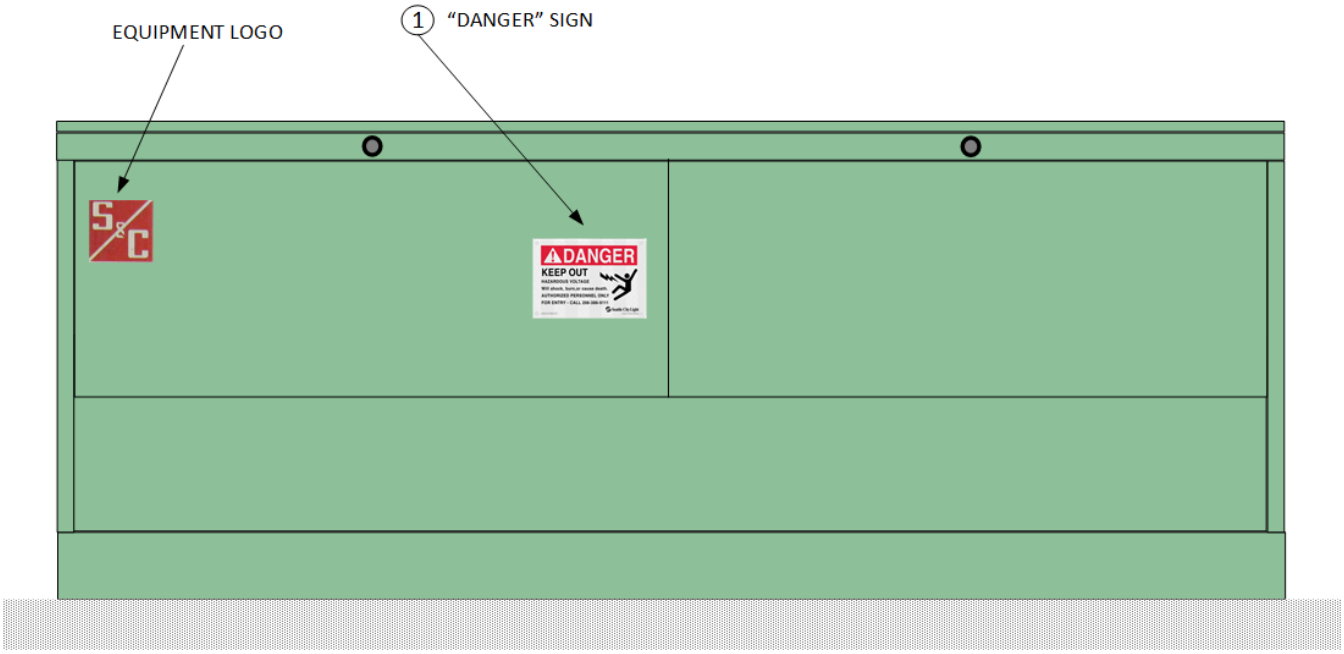


Figure 4.4f. Remote Supervisory Vista Switch LVE with Pedestal Mount, Double Swing Doors

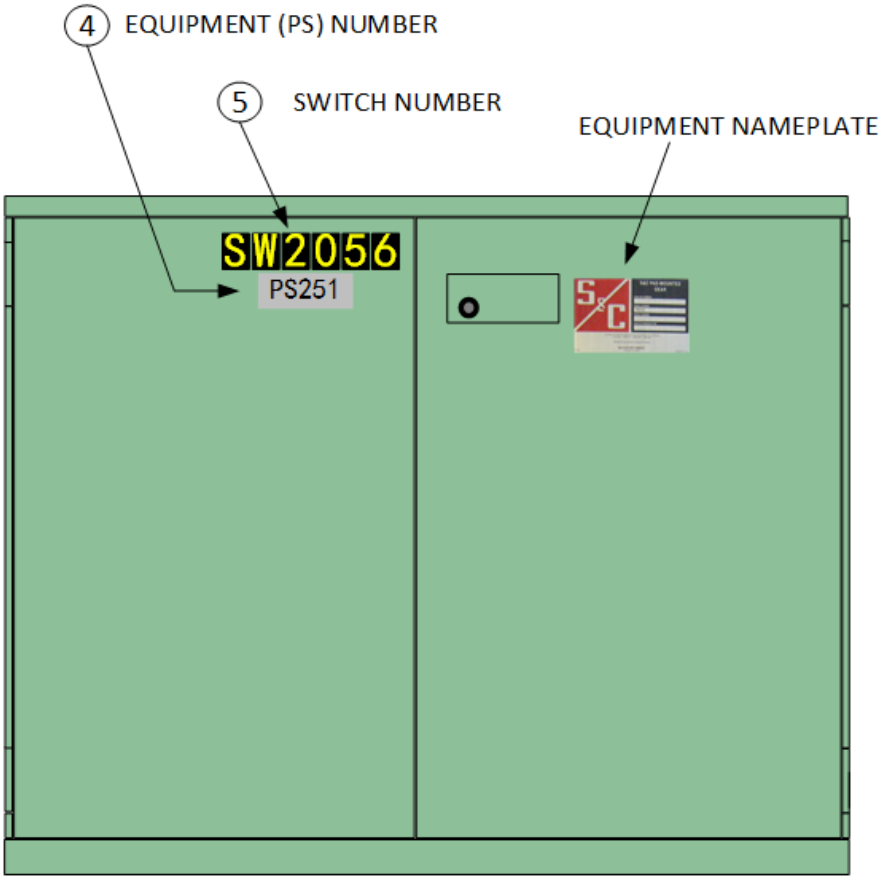


Figure 4.4g. Remote Supervisory Vista Switch LVE with Pedestal Mount, Single Door

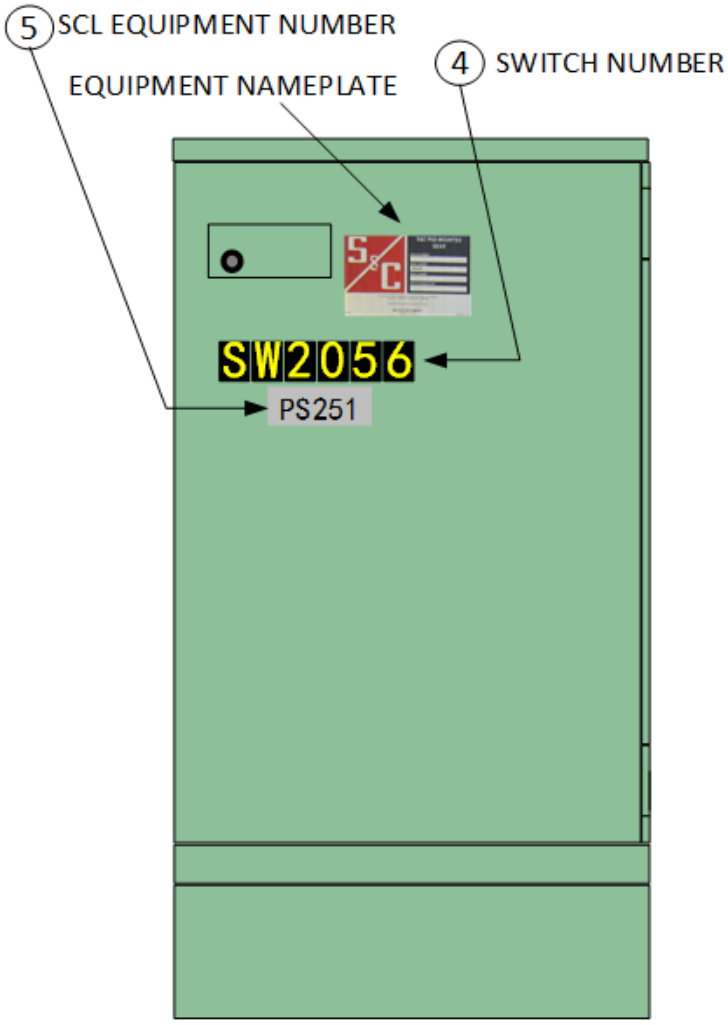


Figure 4.4h. Manual Vista Switch, Front View

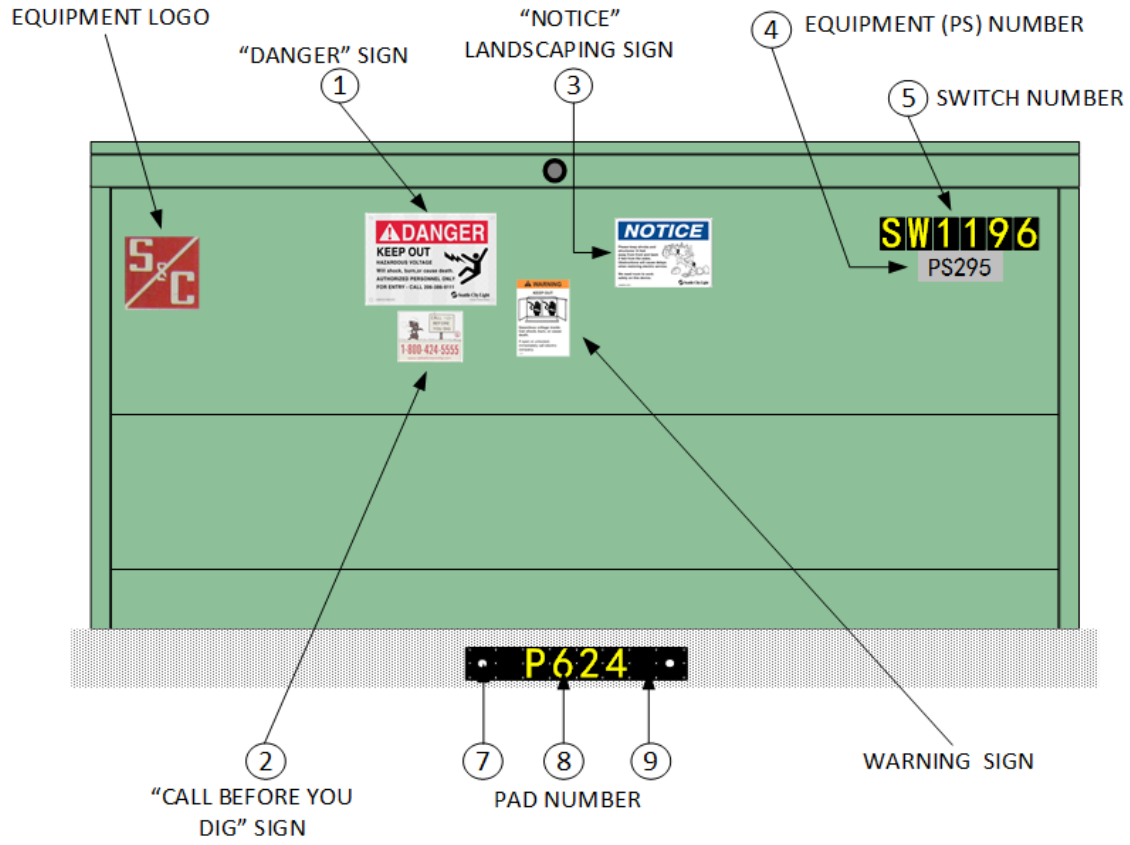
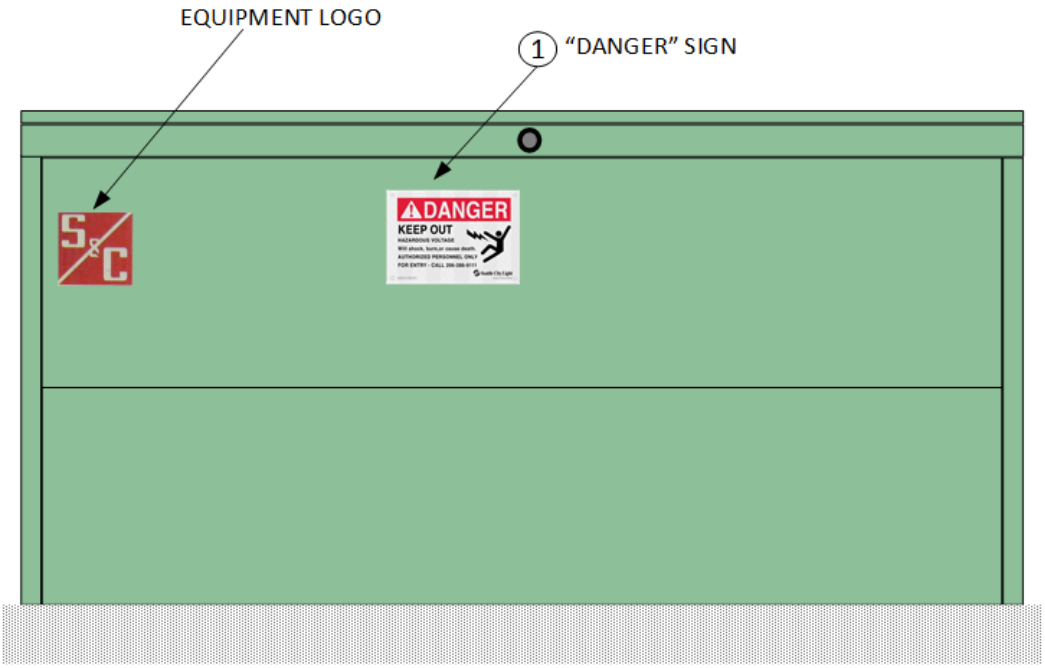


Figure 4.4i. Manual Vista Switch, Rear View



4.5 Switch Configuration Diagrams

All of the exterior safety signs and labels that are not marked in the figures or included in the material list are manufacturer-supplied.

Manual, Source-Transfer, and Remote Supervisory PMH switch compartments shall be labeled in the configuration shown in Figures 4.1a and 4.1b. Although the connection diagrams shown below are for Manual PMH switch, the compartment labeling is also applicable to Source-Transfer and Remote Supervisory PMH switches.

Switch compartments that have already been marked in the field should **not** be re-labeled to match this standard.

Figure 4.5a. Four-Compartment PMH Switch Configuration

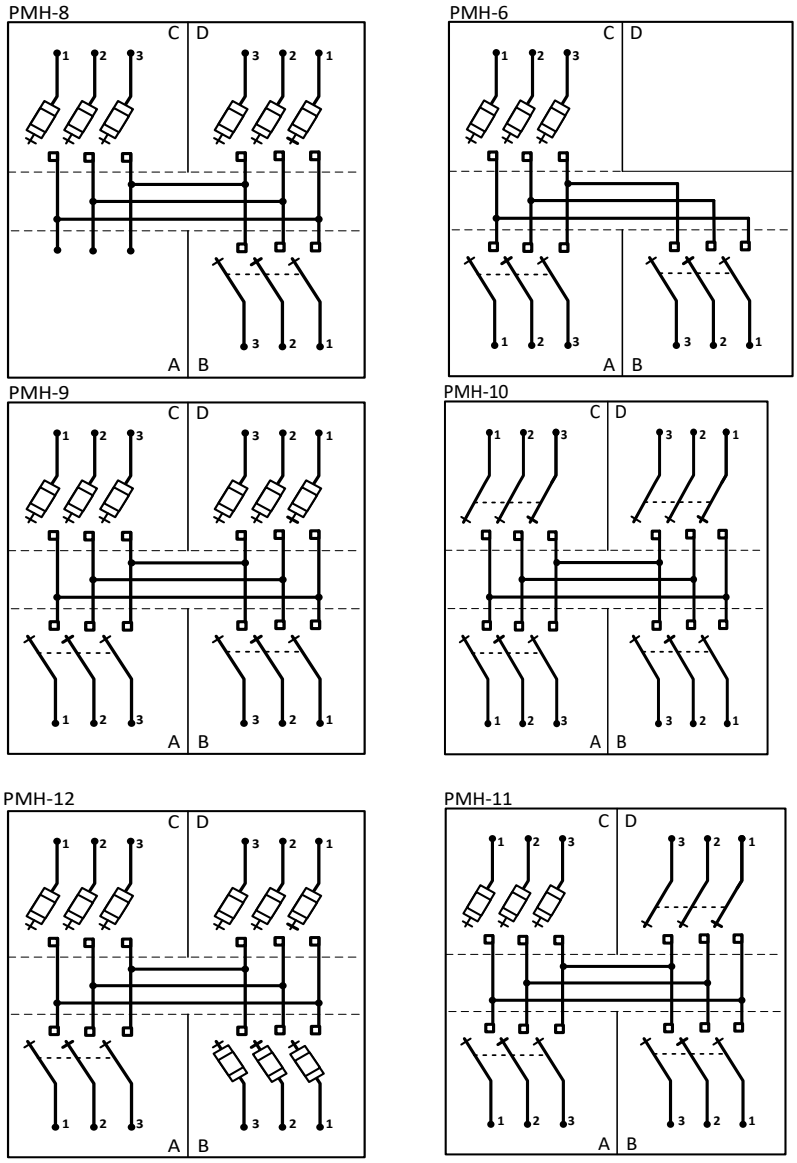
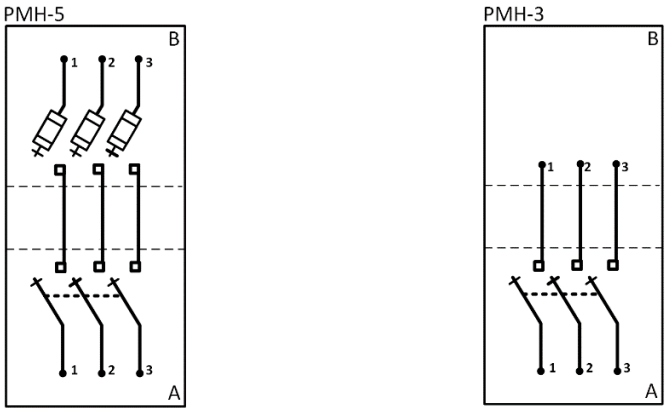


Figure 4.5b. Two-Compartment PMH Switch Configuration



5. Affixing Signs and Labels to Equipment

5.1 Safety

The procedures contained herein can be performed while the switch is energized. Since the signs and labels are affixed to the exterior of the switch and the compartment doors are never opened, there is no immediate electrical safety hazard, unless there is indication of corona or partial discharge.

DO NOT affix signs or labels to switches that have a buzzing, hissing, or cracking noise. These types of noises indicate presence of corona or partial discharge. Report the situation to your immediate supervisor.

5.2 Required PPE

The following PPE is required to attach signs and labels to energized switches on the field:

- Hard hat
- Safety glasses
- Gloves
- Safety vest
- Safety cones
- Yellow tape

5.3 Required Tools

The following material and tools are required to attach signs and labels to energized switches in the field:

- Isopropyl alcohol
- Scotch-Brite (or equivalent) pads
- Cleaning cloth
- Folding rule, wood
- Pencil
- Heat gun

5.4 Procedure

5.4.1. New Signs and Labels

Affix signs and labels as illustrated in Section 4.

Clean the mounting location surface using isopropyl alcohol to ensure it is free from dirt, oil or other contaminates. For old or weathered surfaces, use a Scotch-Brite (or equivalent) pad to roughen the surface.

Using a rule and a marking pencil, take appropriate measurements and mark up the exact location where signs or labels are to be affixed.

The surface temperature should not be below 50°F when signs or labels are applied. A heat gun may be used to warm up the enclosure surface.

Rub each label firmly using cloth to ensure adhesion and remove any air bubbles. Labels must be applied carefully. Once the material is applied, it cannot be removed.

5.4.2. Existing Signs and Labels

Remove “PCB” signs, if one exists. Padmount switches do not contain oil and do not need to be labeled.

Remove all other damaged or faded signs and replace with new. If the damaged signs cannot be removed easily, affix the new replacement signs on top of existing ones.

Follow steps in Section 5.4.1 to install new signs and labels.

6. Material Lists

Table 6a. Signs and Labels Required for Each Switch or Control Cabinet

Switch Type	Figure	Quantity						
Four-compartment PMH Switch	4.2a, 4.2b, 4.2c, 4.2d							
Low Voltage Control Cabinet, PMH Switch	4.2e							
Two-Compartment PMH Switch	4.3a, 4.3b							
Remote Supervisory Vista Switch, Attached LVE	4.4a, 4.4b, 4.4c							
Remote Supervisory Vista Switch, Detached LVE	4.4d, 4.4e							
Vista Switch Low Voltage Enclosure (LVE)	4.4f, 4.4g							
Manual Vista Switch	4.4h, 4.4i							

#	Material Description	ID							
1	Sign, “Danger Hazardous Voltage”	765182	2	–	2	2	2	–	2
2	Sign, “Call Before You Dig”	765255	1	–	1	1	1	–	1
3	Sign “Notice, Landscaping Requirements:	014125	1	–	1	1	1	–	1
4	Label, Equipment (PS) number	See Table 6b	1	1	1	1	1	–	1
5	Label, switch number	See Table 6b	1	1	1	1	2	1	2
6	Label, compartment identification letter	See Table 6b	–	–	–	–	4	1	12
7	Nail, anchor drive, 1/4" x 1"	780010	2	–	2	2	2	–	2
8	Label, pad (P) number	See Table 6b	1	–	1	1	1	–	1
9	Panel	766300	1	–	1	1	1	–	1

Switch number, compartment letter, and pad numbers are composed of letters and numbers with various stock numbers. See Table 6b.

Table 6b. Stock Numbers for Letters and Numbers

Stock No.	Character
766310	0
766311	1
766312	2
766313	3
766314	4
766315	5
766316	6
766317	7
766318	8
766319	9
766328	A
766332	B
766329	C
766335	D
012997	E
013074	F
766320	H
766334	K
766321	M
766322	N
766323	P
766324	S
766333	T
766330	U
766325	V
766326	W
766331	FDR
766327	- [*Dash*]
766300	panel

7. Sources

Hanson, Brett; SCL Standards Supervisor and subject matter expert for 1167.13

SCL Construction Standard 0801.02: “Switchgear, 27 kV, Padmount, Live-Front”

SCL Construction Standard U10-5.2; “Pad Construction for Padmounted Switchgear”

SCL Construction Standard U2-16; “Vault, Manhole, Handhole Number Identification”

SCL Construction Standard U10-1.2; “Transformer Pad, Commercial and Industrial Underground from Overhead”

SCL Material Standard 7650.07; “Reflective Letters and Numbers, Pressure-Sensitive, 2-7/8” x 1-3/4”, and Panel”

SCL Material Standard 7651.27; “Signs, Danger Hazardous Voltage, 7 in x 10 in, Adhesive”

662A-31; “S&C Manual PMH Pad-Mounted Gear, Outdoor Distribution (14.4 kV and 25 kV), Specifications, Specification Bulletin 662A-31”; dated December 19, 2011

RD-3684; “Nameplates and Hazard-Alerting Signs for S&C PMH Pad-Mounted Gear (Shipped Since September 1994) and 25 kV), Drawing No. RD-3684”; dated April 27, 1994

Shetab, Muneer; SCL Standards Engineer, subject matter expert, and originator of 1167.13