Purpose and Scope

This document provides dimensions, illustrations, and ordering information for surface-operable, primary, electric underground equipment and splice enclosures including frame and cover assemblies. The primary enclosures shown in this document are the preferred enclosures. Precast and poured-in-place manholes should be used only when space for surface-operable enclosures cannot be obtained.

General Information

1. Monolithically poured concrete enclosures may be provided by the supplier, for any depth combination of body and extension, if the enclosure is delivered “in-hole” by the supplier and the enclosure accommodates the approved frame and cover assembly by matching the dimensional requirements herein. Precast and poured-in-place enclosures shall meet the requirements herein.

2. Size all enclosures to accommodate the largest size cable or piece of equipment that may ultimately be installed for 600-Amp and 200-Amp distribution circuits.

3. The greatest cost savings is achieved by taking delivery of the enclosure at the jobsite and using supplier’s equipment to install the enclosure into the prepared excavation.


5. It is the responsibility of the installing party to check and prepare the jobsite as follows:
   A. Make space available for the supplier’s equipment and/or a crane.
   B. Arrange for the removal of any overhead facilities that might prohibit the use of the supplier’s equipment and/or crane (if necessary).
   C. Provide the excavation in the proper location and of the correct size, depth, and alignment, dewatered as needed.
   D. Prepare the excavation with 6 inches of compacted, 3/4 inch Class 2 Aggregate Base (AB). Provide backfilling, compaction, and resurfacing.
   E. Provide for waterproofing and protection board where required by Document 072149.
   F. Provide the necessary manpower to assist in the installation of the enclosure.

6. Mastic sealant is to be provided by the supplier for all concrete-to-concrete joints. Mastic sealant must be installed for all concrete-to-concrete joints.

7. The frame shall be continuously grouted to the enclosure. When grade-adjustment bolts are used, the adjustment bolts are to be completely removed from the frame after grouting. Install enclosures as level as practical, but do not exceed 1/8” per foot slope.

8. Do not break out the bottom of the sump hole. The compacted (AB) is for leveling the enclosure, not for drainage.

9. The enclosures in this document are equipped with conduit terminators. When entering these enclosures with conduit of a different diameter than the terminator, use a swedge reducer (Document 062288). New enclosure design no

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longer has a knockout window. If working with existing enclosures, and need to enter through a knockout, use an end bell and grout.

10. Core drilling the enclosure for installation of additional conduits is not allowed.

11. Pulling Irons
   - Pulling irons shall be designed for 20,000 pounds ultimate, with a safety factor of two (40,000 pounds).

12. Lifting
   - A. All extensions and heavy full traffic covers shall be provided with four 7/8-inch diameter, 2-1/4-inch minimum deep inserts with unified coarse thread, Class 2A threads.
   - B. Boxes shall be lifted using pulling irons in the floor.

13. Marking
   - A. All covers shall be marked with one “High Voltage” and three blank number ID plates in accordance with Document 051768.
   - B. All covers shall be permanently marked on the underside with the manufacturer’s name and the date of the manufacturer in this format: mm/yy.
   - C. All concrete parts shall be permanently identified with the manufacturer’s name on the inside and outside surfaces.
   - D. All concrete parts shall have the weight stenciled on the outside surface.

14. All bodies and extensions shall conform to the dimensional specifications so as to be fully interchangeable with the bodies and extensions of all other manufacturers.

15. All covers shall have a PG&E-approved, high coefficient of friction (0.65 or better), slip-resistant surface.

16. The following parts of the frame and cover assembly shall conform to the dimensional specifications and the applicable PG&E standards so as to be compatible with the frame and cover assemblies of any approved manufacturer.
   - A. Viewport (Refer to Document 066205)
   - B. Identification Plates (Refer to Document 051768)
   - C. Replacement Bolt Down Assembly (M040586). This assembly is part of the cover release locking mechanism.

17. Each approved manufacturer of frame and cover assemblies shall maintain dimensional consistency between all the parts of the frame and cover assembly such that replacement parts will be compatible with that manufacturer’s existing assemblies in use in the field.

18. Grounding is required for all new primary concrete enclosures. Grounding is highly recommended to existing primary enclosures. For grounding requirements of the enclosure refer to Document 060462.


### Application

19. General: Selection of the correct type of enclosure involves judgment, taking into account the present and future intended traffic for the area where the enclosure will be located, and future cable or equipment changes.

20. Incidental-vehicular-traffic ([ASTM C-857](#), Rating H-10-44, light traffic): For use in sidewalks, paved and unpaved pedestrian areas, parkway strips adjacent to curbs, and any other area subject to occasional vehicular traffic up to 10 tons gross vehicle weight (GVW) and/or 10 mph speed limits.

21. Full-vehicular-traffic ([ASTM C-857](#), Rating HS-20-44, full traffic): Quick-release covers designed for H-20 vehicular wheel load but not subject to high-density traffic with speed higher than 25 mph; locations such as alleys, driveways, parking strips, etc.

22. Heavy full-vehicular-traffic ([ASTM C-857](#), Rating HS-20-44, heavy traffic): For use in streets and all other areas subject to vehicular traffic in excess of 10 tons GVW, but not to exceed 20 tons GVW. Entrance into this type of enclosure shall not be made through an opened gate.

23. Heavy full-vehicular-traffic enclosures are not to be used to install sectionalizing equipment or transformers, except on projects where a location for an incidental-vehicular-traffic box is not available.

### References

<table>
<thead>
<tr>
<th>Cable Support for Underground Use</th>
<th>Location</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification Plates for Subsurface Enclosures</td>
<td>UG-1: Splices</td>
<td>028077</td>
</tr>
<tr>
<td>Duplex-Type, Three-Phase, Subsurface Transformer</td>
<td>UG-1: Transformers</td>
<td>051768</td>
</tr>
<tr>
<td>Grounding of Underground Equipment</td>
<td>UG-1: General</td>
<td>060462</td>
</tr>
<tr>
<td>Underground Conduits</td>
<td>UG-1: Conduits</td>
<td>062288</td>
</tr>
<tr>
<td>Requirements for Allowing Installation of Subsurface Transformers</td>
<td>UG–1: General/Greenbook</td>
<td>072149</td>
</tr>
<tr>
<td>Design Requirements for Primary Electric Distribution Underground Concrete Enclosures</td>
<td>TIL</td>
<td>EMS 53</td>
</tr>
</tbody>
</table>
### Table 1 Enclosure and Excavation Sizes for New Installations of Subsurface Equipment

<table>
<thead>
<tr>
<th>Application</th>
<th>Location</th>
<th>Enclosure Size 4</th>
<th>Excavation Size 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-Amp Cable and Non-Lead Splices</td>
<td>Yes</td>
<td>3' x 5' x 3' 6&quot;</td>
<td>5' x 7' x 5'</td>
</tr>
</tbody>
</table>
| 200-Amp Junctions | No | 4' x 6' 6" x 5' | 6' x 8' 6" x 6' 6"
| 200-Amp Sectionalizing Switches | Yes 2 | 4' x 6' 6" x 5' | 6' x 8' 6" x 6' 6" |
| 200-Amp Subsurface Fused Switches | No | 4' x 6' 6" x 5' | 6' x 8' 6" x 6' 6"
| 200-Amp Automatic Interrupter | No | 4' x 6' 6" x 5' | 6' x 8' 6" x 6' 6"
| 600-Amp Cable, Non-Lead Splices | Yes | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" x 7' 6"
| 600-Amp Separable Connectors | No | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" "x 7' 6"
| 600-Amp Sectionalizing Switch | Yes 2 | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" x 7' 6"
| 600-Amp Scada Switch | No | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" x 9"
| 600-Amp Automatic Interrupter | No | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" "x 7' 6"
| 3Ø Duplex Transformer | Yes 2 | 4' 6" x 8' 6" x 6' | 6' 6" x 10' 6" x 7' 6"
| 3Ø UCD (112.5 through1,000 kVA) | Yes 2 | 4' 6" x 8' 6" x 7' 6" | 6' 6" x 10' 6" x 9"

1. Depth allows for 6" of a compacted, 3/4" Class 2 Aggregate Base (AB).
2. Installing this equipment in heavy full-traffic enclosures is the least desirable option, and should only be considered on reconstruction projects where suitable locations for incidental and full vehicle traffic boxes are not available. Refer to Item 23 in the Application section of this document.
4. The 12" extension that is included in the heavy full-traffic assembly is not listed in this column.
5. Installation of a 3’x5’x3’6” enclosure for straight splices is only allowed if no future expansion is expected that would require a transformer, junction, or switch to be installed in that enclosure.

### Notes

1. Existing 3’ x 5’ (#5) enclosure will continue to be allowed when replacing existing 200-Amp slice, junction, equipment.
2. When intercepting existing 200-Amp primary cable to install 200-Amp equipment, the installation of a 3’ x 5’ (#5) enclosure will only be allowed if there is no physical space for the installation of a 4’ x 6’ 6” (#6) enclosure and all other design alternatives have been exhausted. However, installation of 167 kVA single phase transformers requires a 4’ x 6’ 6” (#6) enclosure.
3. The installation of 200-Amp junction and equipment is not allowed in 3’ x 5’ (#5) primary enclosure for new PG&E job estimates or Applicant Design (AD) estimates.
3’ 0” x 5’ 0” (#5) Complete Enclosure Assemblies (incidental transformer cover shown)

![Isometric View of 3’ x 5’ Enclosure Assembly (not to scale)](image)

**Figure 1**
Isometric View of 3’ x 5’ Enclosure Assembly (not to scale)

**Table 2 Complete Enclosure Assembly (for 200-Amp distribution)**

<table>
<thead>
<tr>
<th>Application</th>
<th>Enclosure Size</th>
<th>Type of Traffic Loading</th>
<th>Type of Cover</th>
<th>Code ¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splice Box</td>
<td>3’ x 5’ x 3’ 6”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>025601</td>
</tr>
<tr>
<td></td>
<td>3’ x 5’ x 3’ 6”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041668</td>
</tr>
<tr>
<td></td>
<td>3’ x 5’ x 4’ 6”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041612</td>
</tr>
<tr>
<td></td>
<td>3’ x 5’ x 4’ 6”</td>
<td>Incidental</td>
<td>Quick-Release Steel</td>
<td>040334</td>
</tr>
<tr>
<td></td>
<td>3’ x 5’ x 4’ 6”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041669</td>
</tr>
<tr>
<td></td>
<td>3’ x 5’ x 5’ 6”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>040327</td>
</tr>
</tbody>
</table>

¹ Code includes body, frame, and cover assembly. The heavy full-traffic assembly also includes a 12” extension. When extra depth is required, order additional extension from Table 4 on Page 7.
Table 3  Complete Frame and Cover Assembly

<table>
<thead>
<tr>
<th>Type of Enclosure</th>
<th>Type of Traffic Loading</th>
<th>Type of Cover</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splice Box</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>025604</td>
</tr>
<tr>
<td></td>
<td>Full-Traffic(^1)</td>
<td>Quick-Release Steel</td>
<td>041052</td>
</tr>
<tr>
<td></td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041616</td>
</tr>
</tbody>
</table>

\(^1\) For application guide, see Note 21 on Page 3.

---

**3' 0" x 5' 0" (#5) Complete Enclosure Assemblies (continued)**

**Figure 2**

3' 0" x 5' 0" Body Enclosure and Extensions

---

**Not Required**

**Detail A**

Tongue and Groove

Width

Length

**Enclosure**

**Mastic Sealant Included With Enclosure Assembly for All Concrete-to-Concrete Joints Below Surface Level**

4-1/2"

3' 0"

1-1/4" x 1-1/2" Hole

12" Duct Terminators

3 - 3" Duct Terminators

15-1/2"

12" Duct Terminators

2 - 1/2" Brass Insert with Rod Attached to Rebar Cage

9-1/2"

18-1/2"

6-1/8"

1-5/8"

5/8"

1-1/8"

4-1/2"

1-1/4"

2-1/4"

2-1/4"

1-1/4"

6"

CL Tongue and Groove Enclosure

20-1/4"

32-1/4"

12"

10"

9-1/2"

10"

14"

6-1/8"

2 - 1/2" Brass Insert with Rod Attached to Rebar Cage

Section A-A

Section B-B

---

**Plan**

1" Holes for Ground Rod, Two Places (blind)

12" Sump, 4" Deep (see Note 8 on Page 1)

Flush Pull Irons, Four Places (see Note 11 on Page 2)
### 3' 0" x 5' 0" (#5) Complete Enclosure Assemblies (continued)

Table 4  Codes for Enclosure (Figure 2 on Page 6)

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
<th>Weight - Approximate (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body, 42&quot; Depth</td>
<td>043361</td>
<td>5,940</td>
</tr>
<tr>
<td>Body, 54&quot; Depth</td>
<td>043588</td>
<td>7,060</td>
</tr>
<tr>
<td>Extension, 6&quot; Depth</td>
<td>043197</td>
<td>560</td>
</tr>
<tr>
<td>Extension, 12&quot; Depth</td>
<td>043362</td>
<td>1,130</td>
</tr>
<tr>
<td>Extension, 24&quot; Depth</td>
<td>043531</td>
<td>2,250</td>
</tr>
</tbody>
</table>

1 Joints must be interchangeable with those shown in Detail A on Page 6 and approved by PG&E electric distribution personnel.

### 3' 0" x 5' 0" (#5) Aluminum Quick-Release Cover Assembly – Incidental Traffic

![Diagram of 3' 0" x 5' 0" Aluminum Quick-Release Cover Assembly]

See Note 13 on Page 2

See Detail C and Detail D on Page 25 for Grade Adjustment Feature

Figure 3  3' 0" x 5' 0" Quick Release Cover Assembly – Incidental Traffic
3’ 0” x 5’ 0” (#5) Aluminum Quick-Release Cover Assembly - Incidental Traffic (continued)

Figure 4
3’ 0” x 5’ 0” Quick-Release Cover Assembly - Incidental Traffic
3' 0" x 5' 0" (#5) Steel Quick-Release Cover Assembly – Full Traffic

Figure 5
3' 0" x 5' 0" Quick-Release Cover Assembly - Full Traffic
3’ 0” x 5’ 0” (#5) Heavy Full-Traffic Cover Assemblies

Table 5 Component Parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3’ x 5’ HFVT, Concrete Cover Without Inserts</td>
<td>1,160 lbs.</td>
<td>040338</td>
</tr>
<tr>
<td>3’ x 5’ HFVT, 5’ x 5’ x 1/2” Steel Frame With Adjustment Feature</td>
<td>290 lbs.</td>
<td>040339</td>
</tr>
<tr>
<td>Cast Iron Grate Inserts for Transformer Enclosures</td>
<td>120 lbs.</td>
<td>040346</td>
</tr>
<tr>
<td>Cast Iron Solid Inserts for Splice/Equipment Enclosures</td>
<td>180 lbs.</td>
<td>040343</td>
</tr>
<tr>
<td>Baffle</td>
<td>25 lbs.</td>
<td>360036</td>
</tr>
</tbody>
</table>
4’ 0” x 6’ 6” (#6) Complete Enclosure Assemblies (incidental transformer shown)

Table 6 Complete Enclosure Assembly (for 200-amp distribution)

<table>
<thead>
<tr>
<th>Application</th>
<th>Enclosure Size</th>
<th>Type of Traffic</th>
<th>Type of Cover</th>
<th>Code ¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Ø Horizontal Transformers</td>
<td>4’ 0” x 6’ 6” x 5’ 0”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>041492</td>
</tr>
<tr>
<td></td>
<td>4’ 0” x 6’ 6” x 5’ 0”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041493</td>
</tr>
<tr>
<td></td>
<td>4’ 0” x 6’ 6” x 6’ 0”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041494</td>
</tr>
<tr>
<td>Equipment/Splice Box</td>
<td>4’ 0” x 6’ 6” x 5’ 0”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>041495</td>
</tr>
<tr>
<td></td>
<td>4’ 0” x 6’ 6” x 5’ 0”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041496</td>
</tr>
<tr>
<td></td>
<td>4’ 0” x 6’ 6” x 6’ 0”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041521</td>
</tr>
</tbody>
</table>

¹ Code includes body, frame, and cover assembly. The heavy full-traffic assembly also includes a 12” extension. When extra depth is required, order additional extension from Table 8 on Page 13.

Table 7 Complete Frame and Cover Assembly

<table>
<thead>
<tr>
<th>Type of Enclosure</th>
<th>Type of Traffic</th>
<th>Type of Cover</th>
<th>Code ¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Ø Horizontal Transformers</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>041092</td>
</tr>
<tr>
<td></td>
<td>Full-Traffic ¹</td>
<td>Quick-Release Steel</td>
<td>360148</td>
</tr>
<tr>
<td></td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041541</td>
</tr>
<tr>
<td>Equipment/Splice Box</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>041093</td>
</tr>
<tr>
<td></td>
<td>Full-Traffic ¹</td>
<td>Quick-Release Steel</td>
<td>360149</td>
</tr>
<tr>
<td></td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041557</td>
</tr>
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</table>

¹ For application guide, see Note 21 on Page 3.
4’ 0” x 6’ 6” (#6) Enclosure and Extensions

Figure 8
4’ 0” x 6’ 6” Body Enclosure
4' 0" x 6' 6" (#6) Enclosure and Extensions (continued)

**Figure 9**

4' 0" x 6' 6" Body Enclosure

Table 8  Parts for Enclosure Replacement (Figure 8 on Page 12)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Weight - Approximate (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body, 60&quot; Depth</td>
<td>041567</td>
<td>11,750</td>
</tr>
<tr>
<td>2</td>
<td>Extension, 6&quot; Depth</td>
<td>041569</td>
<td>800</td>
</tr>
<tr>
<td>3</td>
<td>Extension, 12&quot; Depth</td>
<td>041570</td>
<td>1,600</td>
</tr>
<tr>
<td>4</td>
<td>Extension, 18&quot; Depth</td>
<td>041574</td>
<td>2,400</td>
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</table>

1 Joints must be interchangeable with those shown in Detail A on Page 12 and approved by PG&E electric distribution personnel.
4’ 0” x 6’ 6”(#6) Aluminum Quick-Release Cover Assembly – Incidental Traffic

Figure 10
4’ 6” x 6’ 6” Quick-Release Cover Assembly – Incidental Traffic
4' 0" x 6' 6" (#6) Steel Quick-Release Cover Assembly – Full Traffic

Figure 11
4' 0" x 6' 6" Steel Quick-Release Cover Assembly – Full Traffic
4’ 0” x 6’ 6” (#6) Steel Quick-Release Cover Assembly – Full Traffic (continued)

Figure 12
4’ 0” x 6’ 6” Steel Quick-Release Cover Assembly – Full Traffic
4’ 0” x 6’ 6” (#6) Heavy Full-Traffic Cover Assemblies

4’ 0” x 6’ 6”, HFVT Concrete Cover Without Inserts

4’ 0” x 6’ 6”, HFVT 5’ x 5’ x 1/2” Steel Frame With Adjustment Feature

Cast Iron Grate Inserts for Transformer Enclosures

Cast Iron Solid Inserts for Splice Equipment Enclosures

Baffle

Table 9 Component Parts

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ 0” x 6’ 6”, HFVT Concrete Cover Without Inserts</td>
<td>3,835 lbs.</td>
<td>041926</td>
</tr>
<tr>
<td>4’ 0” x 6’ 6”, HFVT 5’ x 5’ x 1/2” Steel Frame With Adjustment Feature</td>
<td>339 lbs.</td>
<td>041927</td>
</tr>
<tr>
<td>Cast Iron Grate Inserts for Transformer Enclosures</td>
<td>120 lbs.</td>
<td>040346</td>
</tr>
<tr>
<td>Cast Iron Solid Inserts for Splice Equipment Enclosures</td>
<td>180 lbs.</td>
<td>040343</td>
</tr>
<tr>
<td>Baffle</td>
<td>25 lbs.</td>
<td>360036</td>
</tr>
</tbody>
</table>

Table 10 4’ 0” x 6’ 6” Cable Tail Lengths for Estimating

<table>
<thead>
<tr>
<th>4’ 0” x 6’ 6”</th>
<th>28’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal TX Enclosure (Sec. Entrance Side)</td>
<td>26’ Primary/ 7’ Secondary</td>
</tr>
<tr>
<td>Horizontal TX Enclosure (Opp. Sec. Entrance Side)</td>
<td>15’ Primary/ 15’ Secondary</td>
</tr>
</tbody>
</table>

1 Cable tail length for 3’ 0” x 5’ 0” and 4’ 6” x 8’ 6” enclosures are found on the Electric Design Manual under the Underground 10.10 Section, Table 10 – 4.
**4' 6” x 8’ 6” (#7) Complete Enclosure Assemblies**

**Notes**

1. Swedge reducers are necessary with conduit smaller than 6 inches (see Document 062288).

![Figure 14](image_url)

**Table 11 Complete Enclosure Assembly (for 600-amp distribution)**

| Application       | Enclosure Size       | Type of Traffic | Type of Cover         | Code  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3∅ Duplex Transformer ²</td>
<td>4’ 6” x 8’ 6” x 6’ 0”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>043371</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 6’ 0”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041649</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 7’ 0”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041439</td>
</tr>
<tr>
<td>Equipment ³</td>
<td>4’ 6” x 8’ 6” x 6’ 0”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>043411</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 6’ 0”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041666</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 7’ 0”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041441</td>
</tr>
<tr>
<td>UCD Transformer ⁴</td>
<td>4’ 6” x 8’ 6” x 7’ 6”</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>040325</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 7’ 6”</td>
<td>Full-Traffic</td>
<td>Quick-Release Steel</td>
<td>041662</td>
</tr>
<tr>
<td></td>
<td>4’ 6” x 8’ 6” x 8’ 6”</td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>040324</td>
</tr>
</tbody>
</table>

¹ Code includes body, extension (as appropriate), frame, and cover assembly. When extra depth is required, order additional extension from Table 13 on Page 20.

² See Document 051776.

³ 600-amp non-lead splices, 600-amp switches, 600-amp separable connectors.

⁴ 112.5 through 500 kVA UCD transformers with 4-hole secondary spades will fit into existing 4’ 6” x 8’ 6” x 6’ 0” enclosures.
### 4’ 6” x 8’ 6” (#7) Complete Enclosure Assemblies (continued)

#### Table 12 Complete Frame and Cover Assembly

<table>
<thead>
<tr>
<th>Type of Enclosure</th>
<th>Type of Traffic</th>
<th>Type of Cover</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformer</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>031830</td>
</tr>
<tr>
<td></td>
<td>Full-Traffic¹</td>
<td>Quick-Release Steel</td>
<td>041055</td>
</tr>
<tr>
<td></td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041442</td>
</tr>
<tr>
<td>Equipment</td>
<td>Incidental</td>
<td>Quick-Release Aluminum</td>
<td>040642</td>
</tr>
<tr>
<td></td>
<td>Full-Traffic¹</td>
<td>Quick-Release Steel</td>
<td>041054</td>
</tr>
<tr>
<td></td>
<td>Heavy Full-Traffic</td>
<td>Concrete</td>
<td>041443</td>
</tr>
</tbody>
</table>

¹ For application guide, see Note 21 on Page 3.
Primary Electric Underground Enclosures

4’ 6” x 8’ 6” (#7) Enclosure and Extensions

Notes
1. Do not break out sump.
2. Joints must be interchangeable with those shown in Detail B and approved by PG&E electric distribution personnel.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Weight - Approximate (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body, 72” Depth</td>
<td>043376</td>
<td>17,520</td>
</tr>
<tr>
<td>2</td>
<td>Extension, 6” Depth</td>
<td>041094</td>
<td>1,070</td>
</tr>
<tr>
<td>3</td>
<td>Extension, 12” Depth</td>
<td>043415</td>
<td>2,140</td>
</tr>
<tr>
<td>4</td>
<td>Extension, 18” Depth</td>
<td>043377</td>
<td>3,210</td>
</tr>
</tbody>
</table>

Table 13 Parts for Enclosure Replacement (Figure 15)
4’ 6” x 8’ 6” (#7) Aluminum Quick-Release Cover Assembly - Incidental Traffic

Figure 16
4’ 6” x 8’ 6” Quick-Release Cover Assembly - Incidental Traffic
4’ 6” x 8’ 6” (#7) Steel Quick-Release Cover Assembly – Full Traffic

Plan
Equipment Frame and Cover Assembly

Plan
Transformer Frame and Cover Assembly

Isometric View

Side View

Figure 17
4’ 6” x 8’ 6” Steel Quick-Release Cover Assembly – Full Traffic
4’ 6” x 8’ 6” (#7) Heavy Full-Traffic Cover Assemblies

**Figure 18**
4’ 6” x 8’ 6” Heavy Full-Traffic Cover Assembly

**Table 14 Component Parts**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ 6” x 8’ 6”, HFVT Concrete Cover Without Inserts</td>
<td>3,840 lbs.</td>
<td>040340</td>
</tr>
<tr>
<td>4’ 6” x 8’ 6”, HFVT 5’ x 5’ x 1/2” Steel Frame With Adjustment Feature</td>
<td>450 lbs.</td>
<td>040341</td>
</tr>
<tr>
<td>Cast Iron Grate Inserts for Transformer Enclosures</td>
<td>120 lbs.</td>
<td>040346</td>
</tr>
<tr>
<td>Cast Iron Solid Inserts for Splice Equipment Enclosures</td>
<td>180 lbs.</td>
<td>040343</td>
</tr>
<tr>
<td>Baffle</td>
<td>25 lbs.</td>
<td>360036</td>
</tr>
</tbody>
</table>
Transformer Laser Cut Cover Assembly (Incidental Traffic Shown)

Figure 19
3' x 5' (#5) Transformer Assembly – Vent Slot Detail

Figure 20
4' 0" x 6' 6" (#6) Transformer Assembly – Vent Slot Detail

Note:
Although the 4' 0" x 6' 6" (#6) cover has slightly different dimensions than the cover shown on Figure 10 on Page 14, this cover fits on the #6 body enclosure just as well as the cover shown on Figure 10 on Page 14.
Transformer Laser Cut Cover Assembly (continued)

Plan

Figure 21
4’ 6” x 8’ 6” (#7) Transformer Assembly – Vent Slot Detail

Notes
1. Laser cut transformer quick-release cover assembly is an approved design for incidental and full-traffic cover assemblies.
2. Material codes for ordering laser cut cover assemblies are the same as the fiberglass grate insert cover assemblies. Therefore, either type of transformer quick-release cover assembly will be shipped.
3. Design complies with the Americans with Disabilities Act (ADA) Section 30.2.

Details for Frame Assemblies
Cement Grouting Instructions for All Enclosure Frame

Table 15 Grouting Material (structural - Figure 22)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sack - 55 lbs.</td>
<td>Grout, Zero Shrink, High-Early Strength</td>
<td>121016</td>
</tr>
</tbody>
</table>

1 One sack of grout is required for approximately each 1/2" of space between the enclosure and the frame on a 4’ 6” x 8’ 6” enclosure.

Instructions

Step 1. Thoroughly clean all surfaces of the enclosure that the grout will contact. Use clean water to remove dust from surfaces.

Step 2. Remove sufficient soil from around the enclosure to preclude accidentally mixing dirt with the grout. Install the enclosure frame and adjust it to grade.

Step 3. Saturate all grout-contact surfaces of the enclosure with water for as long as possible before grouting using wet rags laid in and around the keyway. The recommended minimum saturation time is 24 hours. Re-saturate the keyways with water before leaving the job. Remove excess water from the female keyway just prior to grouting.

Step 4. Mix grout in a wheelbarrow with clean water. Do not mix more grout than can be easily used within 15 minutes. The consistency of the grout should allow it to flow under pressure.

Step 5. Install the grout directly from a shovel onto the enclosure using hands with gloves. After an adequate amount of grout has been applied, use a trowel to apply additional pressure to the grout so that all voids are filled and the grout is completely consolidated. This is necessary to ensure a full bearing surface for the frame.

Step 6. After wiping off any excess grout and making sure that all voids are filled with grout, cover the grout surface with water-saturated rags. While on the job, moisten the rags often. Re-saturate the rags with water before leaving the job. The water-saturated rags are required to cure the grout properly.

Step 7. Keep wet rags on and traffic off the enclosure for 24 hours to allow the grout to set up properly.

Step 8. Do not backfill and tamp around the enclosure until the set-up period has concluded.

Step 9. Remove the rags before backfilling around the enclosure.

Step 10. Repair any damaged grout by repeating the above procedure.

Step 11. Ready-mix concrete (5-sack mix) is an acceptable alternate.
Revision Notes

Revision 21 has the following changes:

1. Revised Notes 1, 4, 5D – 5G on Page 1.
3. Added Note 15 and re-numbered Notes 16 – 21 on Page 2.
4. Revised table footnote 1 for Table 1 on Page 3.
5. Revised Note 2 on Page 3. Deleted 100 kVA transformer size