Padvault — Three-Phase Transformer

1 Scope

This material specification outlines the minimum requirements for padvaults to be used in conjunction with PacifiCorp-owned three-phase pad-mounted transformers (see Figure 1). The material specification applies whether the padvault is to be installed by company personnel, contractor, customer, or the supplier.

2 Applicable Documents

The latest revisions of the documents, standards, codes, and requirements listed in 2.1, *PacifiCorp Material Specifications*, and 2.2, Codes and Standards, in effect on the date of invitation to bid apply to the extent specified herein.

2.1 PacifiCorp Material Specifications

ZG 301, *General Equipment Base and Enclosure Requirements*

ZG 311, *Concrete Requirements*

ZG 621, *Padvault — 5-Foot by 7-Foot (56″ ×84″), for Three-Phase, Sectionalizing Cabinets and Metering*

ZG 641, *Padvault — Shallow, 7-Foot by 7-Foot (84″ x 84″)*

ZG 821, *Incidental-Traffic Cover For Padvaults*

2.2 Codes and Standards

ASTM C 857 A-16

AASHTO H-20 (for vault, beneath roadways)

ASTM C 857 A-8 (for vault, beneath incidental light truck traffic)

3 General

3.1 Applicabiilty

This material specification states material and construction requirements that are applicable to all three-phase transformer pads.

3.2 Authorization

This material specification is not considered valid until each page contains the approval signature or initials of the persons named in the title blocks.

4 Applicable Stock Item Numbers

Materials being submitted for the following PacifiCorp stock item numbers are subject to evaluation in accordance with requirements in this material specification.

7992600: Includes a 56″ × 84″ × 48″ padvault plus an 84″ × 112″ padvault pad for 2.4-25 kV, 75-750 kVA transfromers

7992958: Includes an 84″ × 84″ × 54″ padvault plus a 84″ × 112″ padvault pad for 2.4-25 kV, 1000−2500 transformers

7992602: Includes a 56″ × 84″ × 48″ padvault plus an 96″ × 112″ padvault pad for 35 kV, 75-7500 kVA transfromers

7992959: Includes an 84″ × 84″ × 54″ padvault plus a 96″ × 112″ padvault pad for 35 kV, 1000−2500 transformers

5 Design and Manufacturing Requirements

The purpose of a three-phase transformer padvault is to support a three-phase transformer.

5.1 Padvault Layout

The three-phase transformer padvault is a combination of a padvault and a padvault pad (lid). Unless otherwise approved by PacifiCorp, all dimensions and placement of hardware shall conform to those shown in Figure 1 and Figure 3 of this document. The three-phase transformer padvaults use two common bases. The first base is a 56″ × 84″ × 48″ padvault. The second base is an 84″ × 84″ × 54″ padvault. Also, each padvault will use two different pads (lids) to offer adequate space for multiple sizes of transformers and associated voltages.

5.2 Mounting and Mounting Hardware

The Supplier shall provide:

- two 2″ × 4″ × 24″ composite boards for a three-phase transformer, cast flush with the top of the padvault lid, at the locations specified in Figure 1 and Figure 3.

PacifiCorp will provide two $^{1}/_{2}$″ x 2″ hot-dip galvanized lag screws (SI#7992810) and two stainless steel Belleville washers to fasten the transformer to the composite board. Additional hardware to be provided by the supplier includes:

- two 1 $^{1}/_{4}$″ x 2 $^{1}/_{2}$″ stainless steel hold-down cleats with $^{1}/_{4}$″ lift and $^{9}/_{16}$″ x 1 $^{1}/_{2}$″ holes.

All loose hardware shall be packaged, and the package shall be attached to one of the padvault walls.

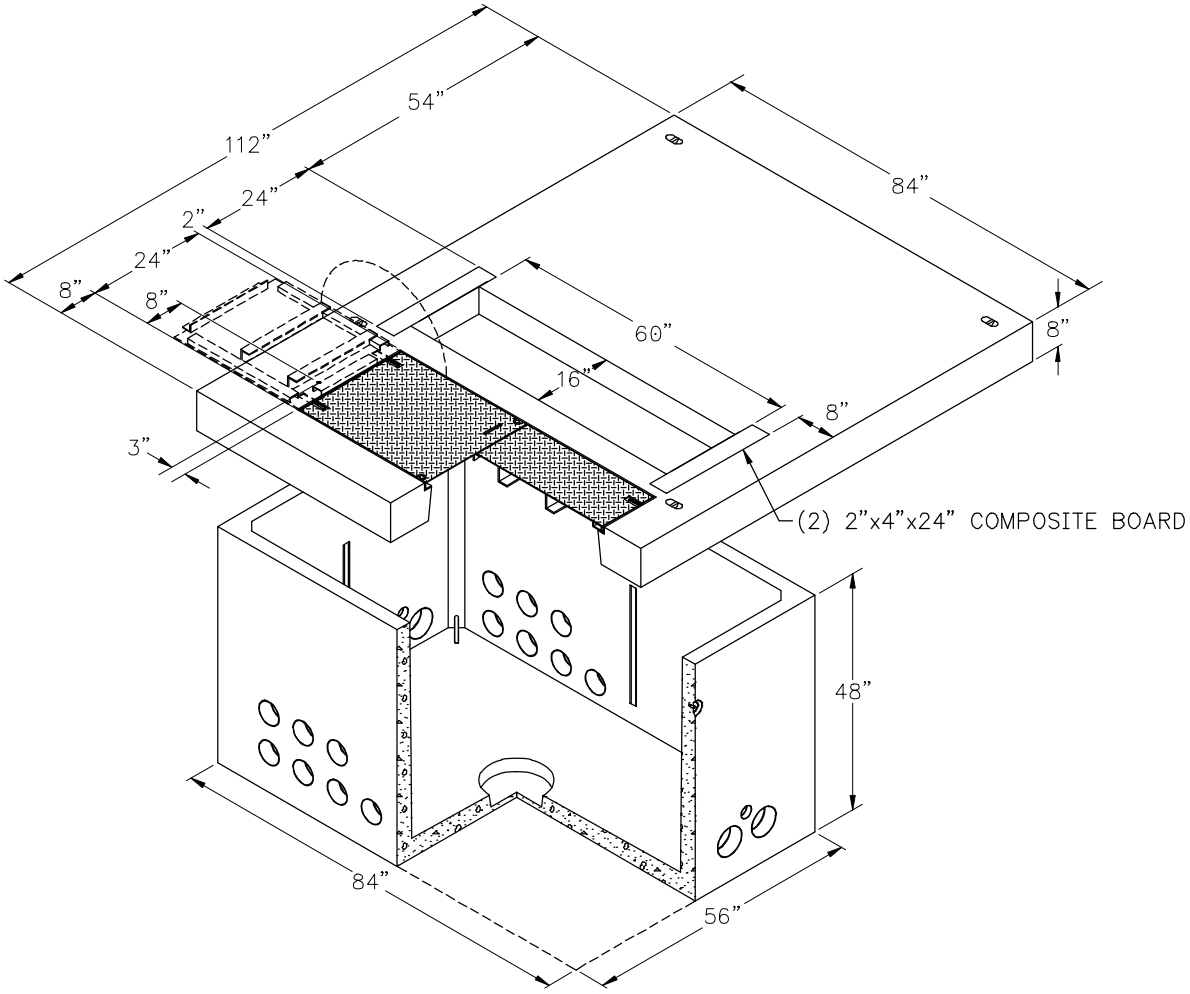

Figure 1—Padvault for 2.4−25 kV Three-Phase 75−750 kVA Transformer (SI#7992600)

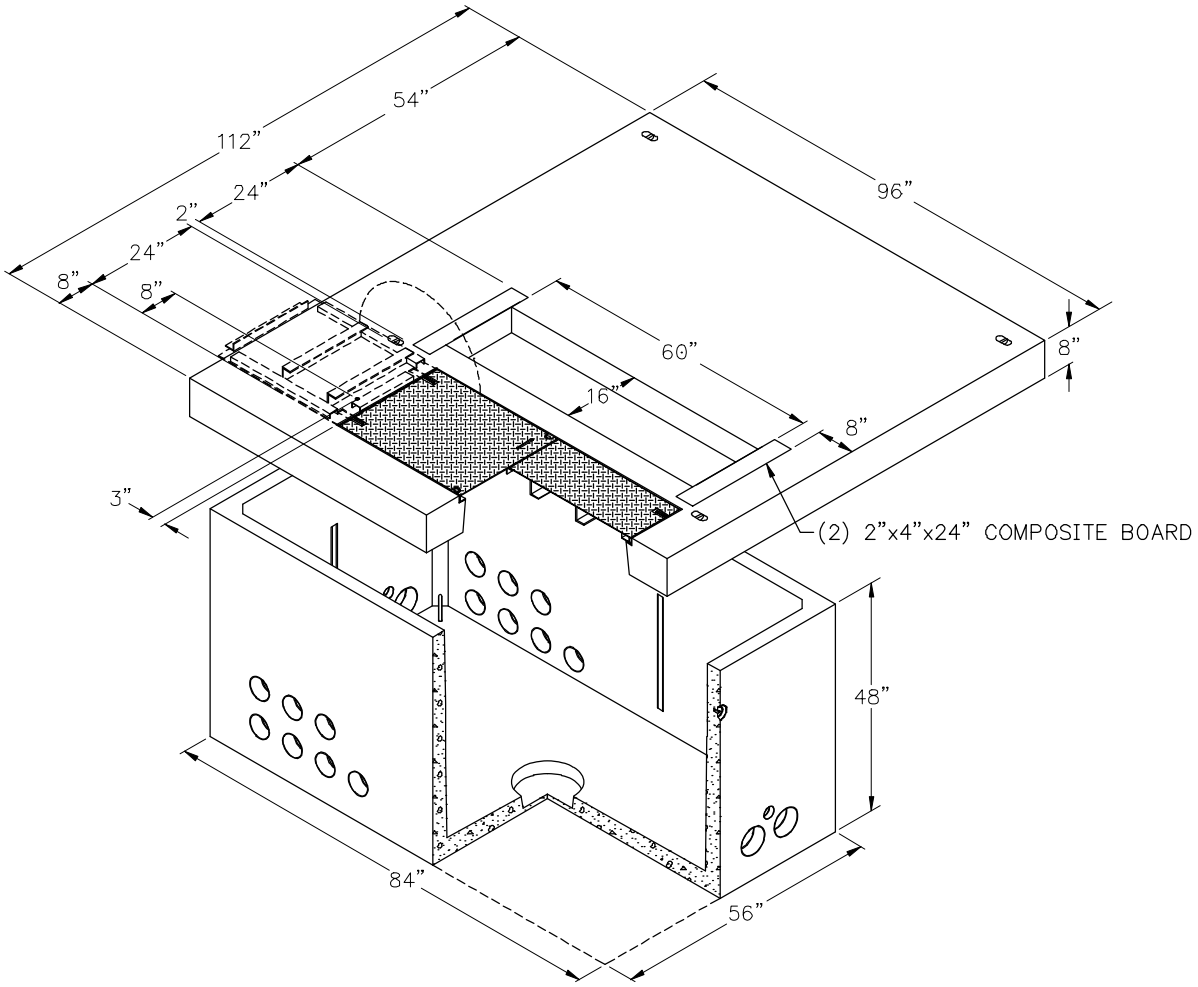

Figure 2—Padvault for 35kV Three-Phase 75−750 kVA Transformer (SI#7992602)

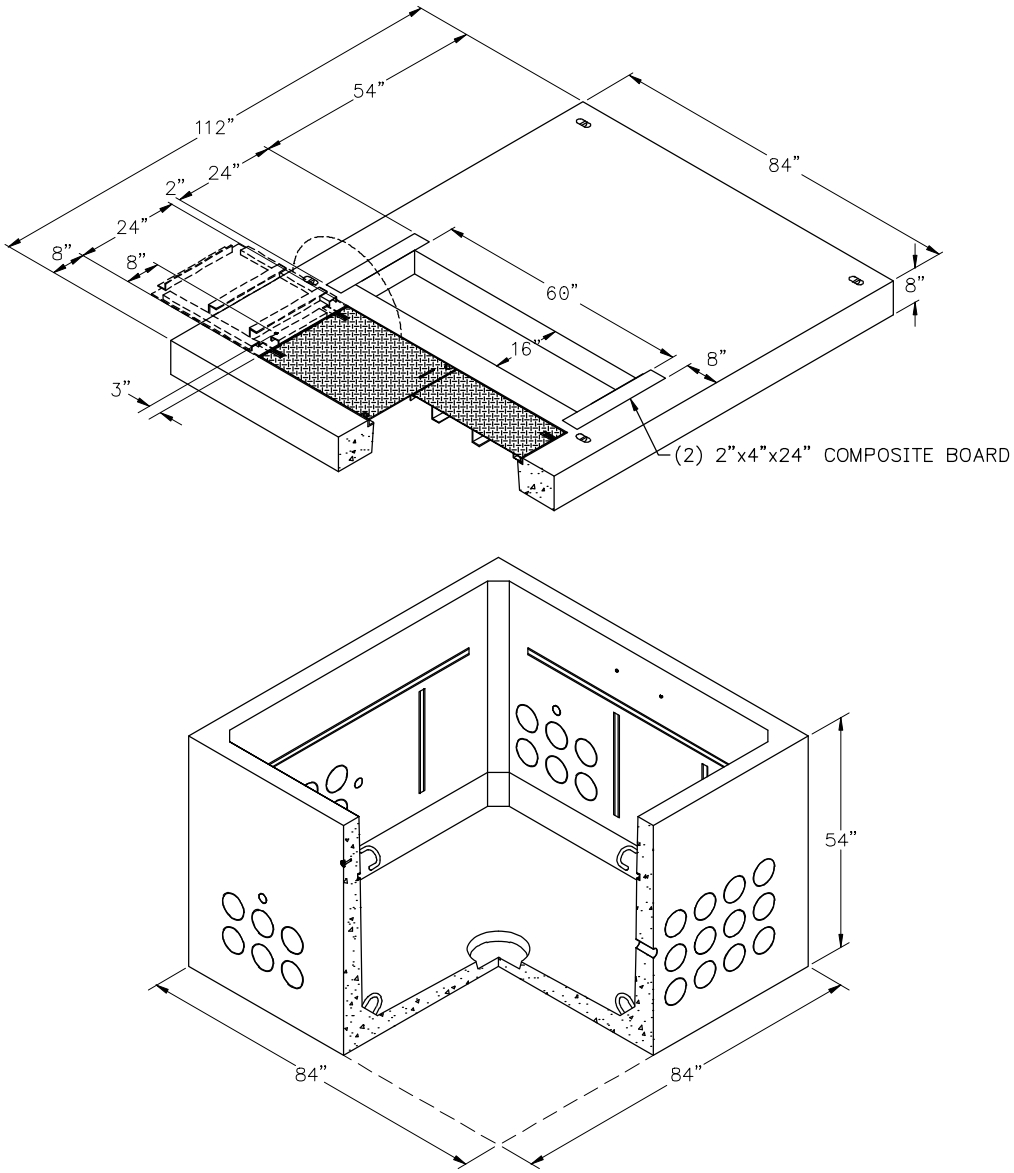

Figure 3—Padvault for 2.4−25 kV Three-Phase 1000−2500 kVA Transformer (SI#7992958)

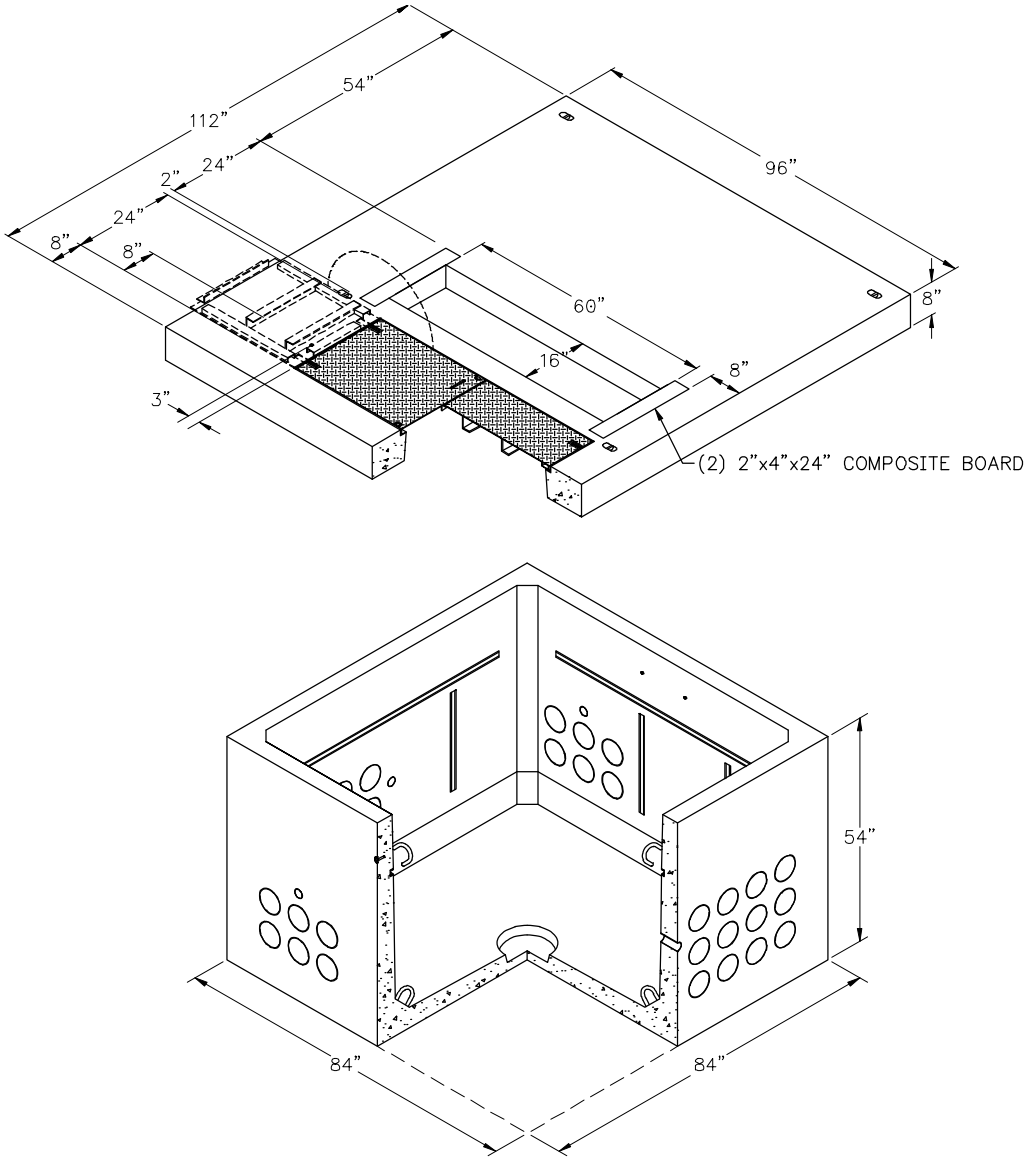

Figure 4—Padvault for 35 kV Three-Phase 1000-2500 kVA Transformer Padvault (SI# 7992959)

5.3 Pulling Attachments

Refer to ZG 621 and ZG 641 for pulling attachment specifications. Pulling attachments shall be rated for 6000 lbs of pulling tension.

5.4 Conduit Entrances

Refer to ZG 621 and ZG 641 for locations of conduit entrances.

5.5 Lifting Attachments

Enough lifting attachments shall be provided to ensure safe installation of all pieces at the site.

5.6 Access Panels

All three-phase transformer pads that rest on an padvault shall have a single access door no larger than 24″ x 60″. The access door must meet all requirements in specification ZG 821.

5.7 Installation

This unit shall be installed at the site by the supplier or contractor. There shall be a 6″ base of $^{3}/_{4}$″-minus gravel under any part of the pad that hangs off the padvault. The 6″ gravel base shall be compacted to 90% dry density, and shall be level to the top of the padvault. The joint between the pad and padvault shall be sealed using tar or mastic. The top of the pad should be two to four inches above final grade, when installed.

6 Testing

6.1 Test Compliance

Padvaults submitted under this material specification shall meet all tests and requirements contained in ZG 301, *General Equipment Base and Enclosure Requirements*, ZG 311, *Concrete Requirements*, and this material specification. Padvaults shall also comply with requirements in applicable national standards.

6.2 Security Test

Transformer padvaults must be designed and tested to ensure that padmount equipment is not compromised by uneven pad setting. And, with the appropriate transformer mounted, attempt to pass a #14 AWG soft-drawn copper wire through the interface between the cabinet and pad. If the wire can be passed through, the padvault has failed the test and is not acceptable.

7 Issuing Department

The Engineering department of PacifiCorp published this document. Questions regarding editing, revision history and document output may be directed to the lead editor at (503) 813−5293. Technical questions and comments may be directed to Ehsan Maleki, Standards Engineering, (503) 813−7089.

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