

## 9 - Subdivision & Plat Requirements

The following information outlines our general requirements for installing underground electrical facilities within a plat or subdivision. It also summarizes the practices and policies incorporated in FPUD's Rules and Regulations for Underground Line Extensions.

- Subdivisions and plats must be approved by the City or County and recorded.
- FPUD will design the distribution system, and install transformers, primary cable, and secondary cable. The distribution system normally consists of primary cable, conduit, vaults and pull boxes installed in public right-of-way or easement along the streets, alleys, or property lines. Front lot design is our current practice.
- Developer furnishes and installs trench, conduit, bedding, and backfill, and provides and installs primary junction vaults with covers, and transformer vaults and covers.
- FPUD requires payment covering all FPUD labor, equipment, and material costs before FPUD construction crews will be scheduled.
- Contact Engineering early in your planning process. They determine availability, location, and conditions of:
  - Services
  - Easements
  - Line Extensions
  - Applicable Fees and/or Charges
- Conduit: The underground duct (conduit) must be gray Polyvinyl Chloride (PVC) Schedule 40, conform to NEMA TC2 Specifications and be permanently marked at regular intervals with the manufacturer's name or symbol, size, "SCH 40" and "PVC". The conduit size will be determined by FPUD (normally 3", 4", or 6").
- Couplings and Fittings: Must be PVC Schedule 40, factory-made, and conform to the same specifications as the conduit. Special sweeps may be required, at the discretion of our Engineer. Sweeps must have a minimum 36" centerline radius. Heat bent angles are not allowed.
- Installation of the Conduit System: Ducts should run in a straight line. Standard bends, sweeps or offsets, as specified above, may be used as required. Install couplings, connectors, and fittings to provide a rigid mechanical assembly with conduit cut square, reamed, and without burrs. Cement conduit joints as recommended by the manufacturer. **Conduit must be sealed with a factory manufactured conduit plug.**

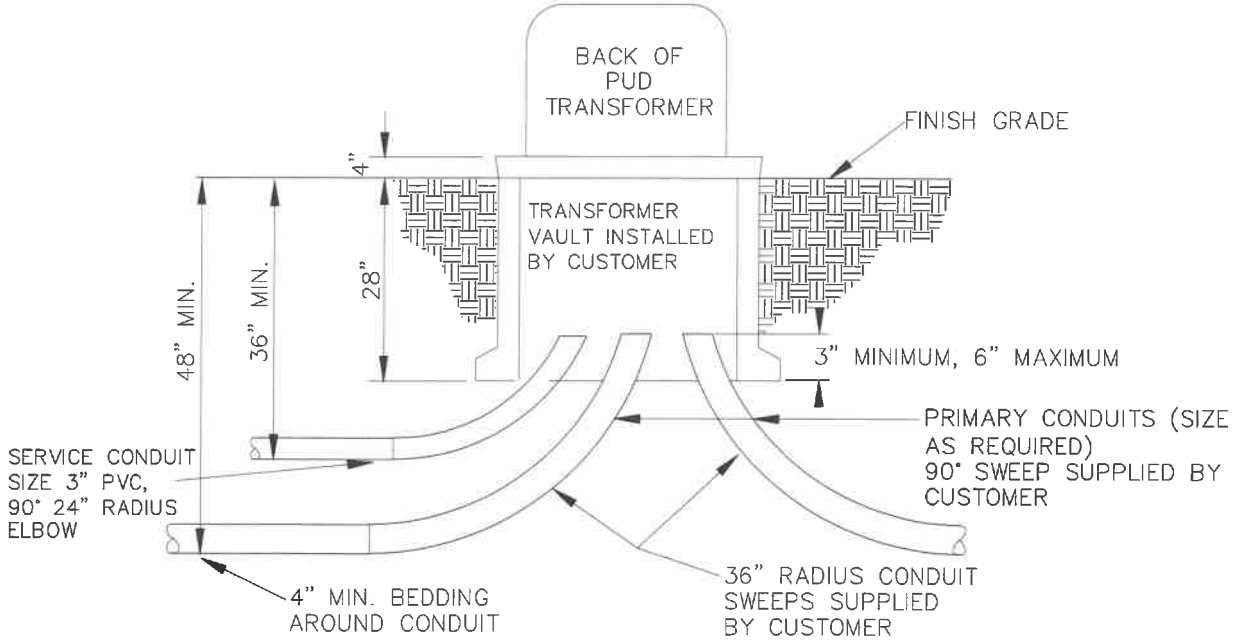
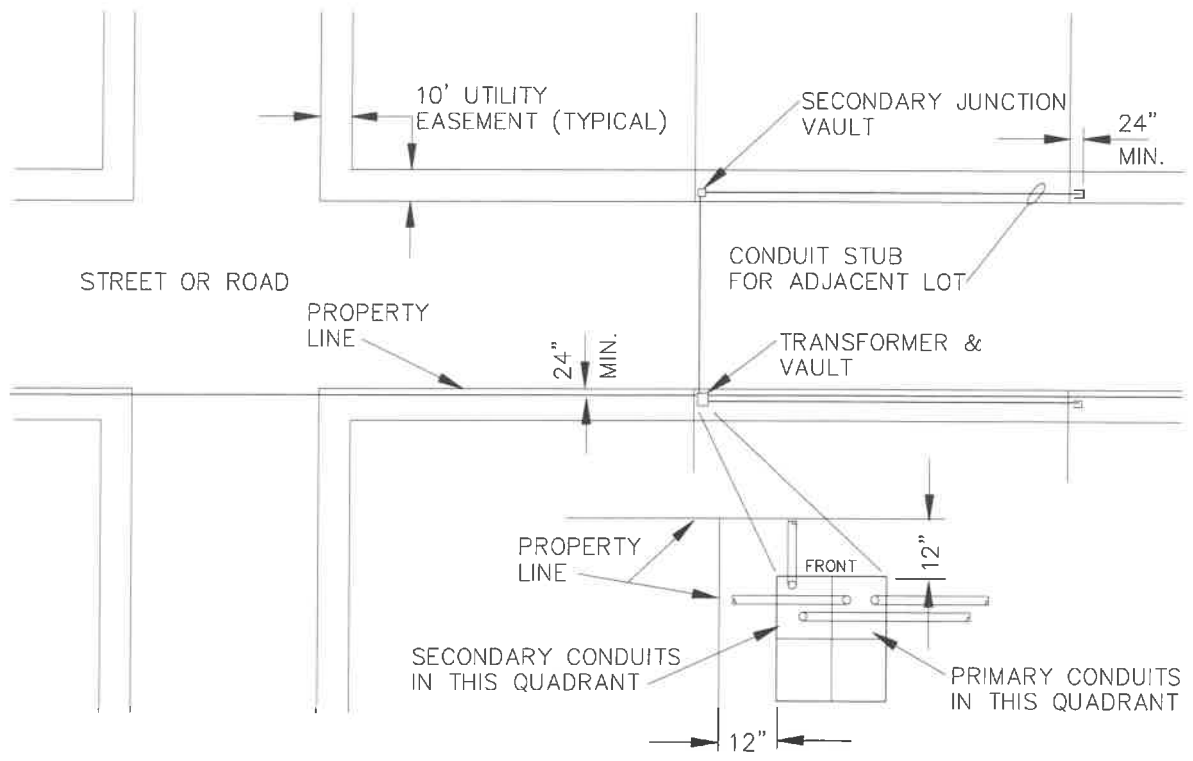
- Duct Bedding and Encasement: Minimum of four (4) inches of bedding and four (4) inches of cover is used to encase the ducts. The minimum depth from finished grade to bottom of trench for primary cable is forty-eight (48) inches, and thirty-six (36) inches to bottom of trench for secondary and street lighting circuits.

Sand or clean soil should be used for the encasement of the duct. Crushed stone or other similar aggregate with sharp points is NOT acceptable.

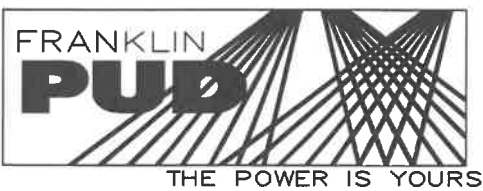
- Inspections: After installation of the duct and the 4" sand bedding beneath the duct, call Engineering for an inspection before proceeding. After installing the 4" sand cover over the conduit, call Engineering again for a final inspection before proceeding with the backfill.

***If you fail to obtain FPUD approval before backfilling the trench, we will require that you expose all or part of the duct run for inspection before we will install cable.***

- Backfill: Excavation material may be used for backfill provided it is free from vegetation, trash, rock, or frozen particles. Backfill should be placed uniformly in layers and each layer thoroughly compacted. **Conduit must be sealed with a factory manufactured conduit plug.**
- Vaults and Covers: The concrete primary junction vaults, transformer vaults and covers will be specified by Engineering. Engineering must approve any equivalent products prior to installation. The top of concrete junction vaults (not including the cover) is installed at the final grade level so that, when the 4" cover is in place, the top of the cover will be 4" above the final grade of the surrounding surface. Knockouts should be made from the inside of the vault. Completely remove center knockout in bottom of vault prior to installation to allow vault to drain. Vault penetrations will need to be grouted according to FPUD standards. Where vaults are to be placed in paved areas, and when fiberglass transformer vaults will be used, discussion of vault grade with Engineering is needed before excavating. All vaults shall be placed on a 6" base of compacted crushed rock.



270.3.DWG



**TYPICAL CONDUIT INSTALLATION FOR RESIDENTIAL SUBDIVISIONS**

DWN. WR APP. D. SAMS	DATE: 3/12 UPDATED: 11/22/2019	DWG. NO.  270.3
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## Mobile Home Park Line Extension

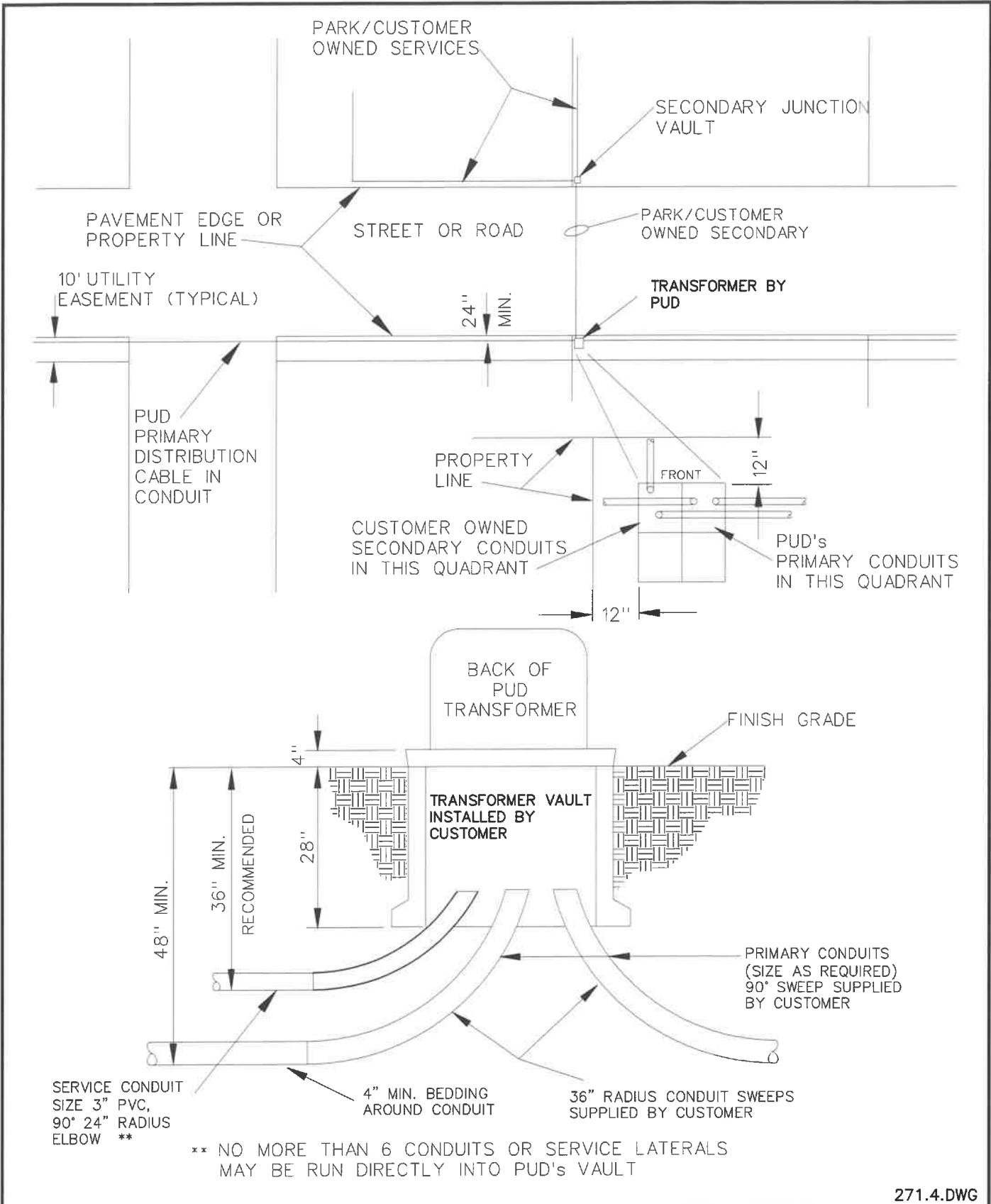
The following outlines our general requirements for installing underground electrical facilities within a mobile home park of single ownership. It summarizes the practices and policies that are incorporated into FPUD Rules of Regulations for Underground Line Extension.

- FPUD Engineering will determine the availability, location and conditions of service, easements, and line extension charges. Contact Engineering early in your planning process for this information.
- To comply with the requirements of city, county and state agencies, you must obtain all permits required from these agencies before excavating on any public land or rights-of-way.
- You normally furnish the following items. Additional items will be reviewed in greater detail as the job progresses.
- Complete conduit and vault system for FPUD primary voltage system. This includes all trenching, conduit, bedding, and backfill as well as providing and installing primary junction vaults and transformer boxes.

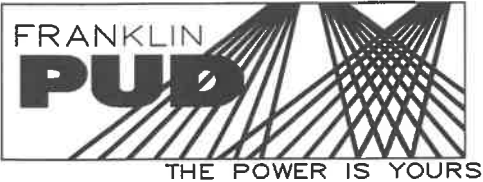
FPUD Engineering will provide a preliminary conduit and vault plan after receiving a copy of the initial development plan.

- Once the county or city that has jurisdiction has approved a development plan, FPUD can provide the final conduit and vault plan with transformer locations, vault specifications, customer cable marking instruction, and termination requirements.
- FPUD must receive a copy of your secondary service plan prior to construction in order to finalize transformer sizes.
- Excavation should be done only as necessary for installing the duct and vault system, exercising care for adjacent sidewalks, curbs, streets and underground utilities. Trenches for underground ducts must be true to line and grade, as shown on the drawings and indicated in the specifications. Keep banks of trenches vertical. Maintain trenches free from standing water when ducts or vaults are being installed, and cleaned of excess and loose rock and earth before installation of duct encasement.
- Conduit: The underground duct (conduit) must be gray Polyvinyl Chloride (PVC) Schedule 40, conform to NEMA TC2 Specifications and be permanently marked at regular intervals with the manufacturer's name or symbol, size, "SCH 40" and "PVC". FPUD Engineering will determine the conduit size (normally 3", 4", or 6").

- **Couplings and Fittings:** Must be PVC Schedule 40, factory-made, and conform to the same specifications as the conduit. Sweeps must have a 36" centerline radius, with the only exception being 3" 90-degree sweeps with a 24" radius under padmounted transformers for residential secondary. Depending on the length and the cumulative angle of sweeps, fiberglass sweeps may be required, at the discretion of FPUD Engineering.



271.4.DWG



**TYPICAL CONDUIT INSTALLATION FOR MOBILE HOME PARKS**

DWN.  
 WR  
 APP. D. SAMS

DATE: 4/10/03  
 UPDATED: 11/22/2019

DWG. NO.  
 271.4

**Transformer Vault & Cover (V-2): Vault, Transformer, Open Cover 1-Phase Pad-Mount**

The concrete transformer vault and cover will be specified by Engineering Department after project engineering is complete. Equivalent products must have prior written approval of our Engineering Department. The top of the vault (not including the cover) is installed at the final grade level so that when the 4" cover is in place; the top of the cover will be 4" above the final grade of the surrounding surface. Conduits are swept up through the open bottom of the vault. All vaults shall be placed on a 6" base of compacted crushed rock.

Materials approved for use by customers of FPUD may be purchased from the following vendors:

**Oldcastle Precast**

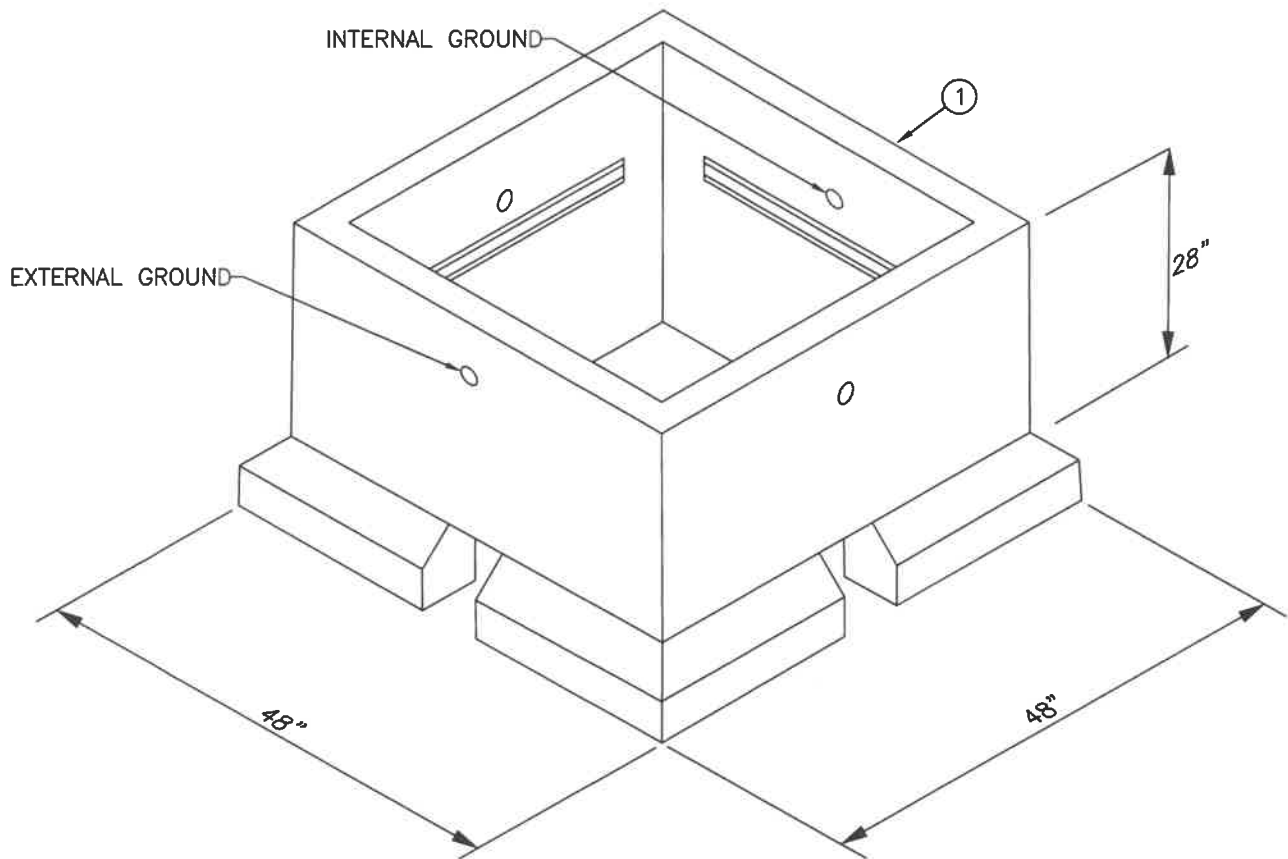
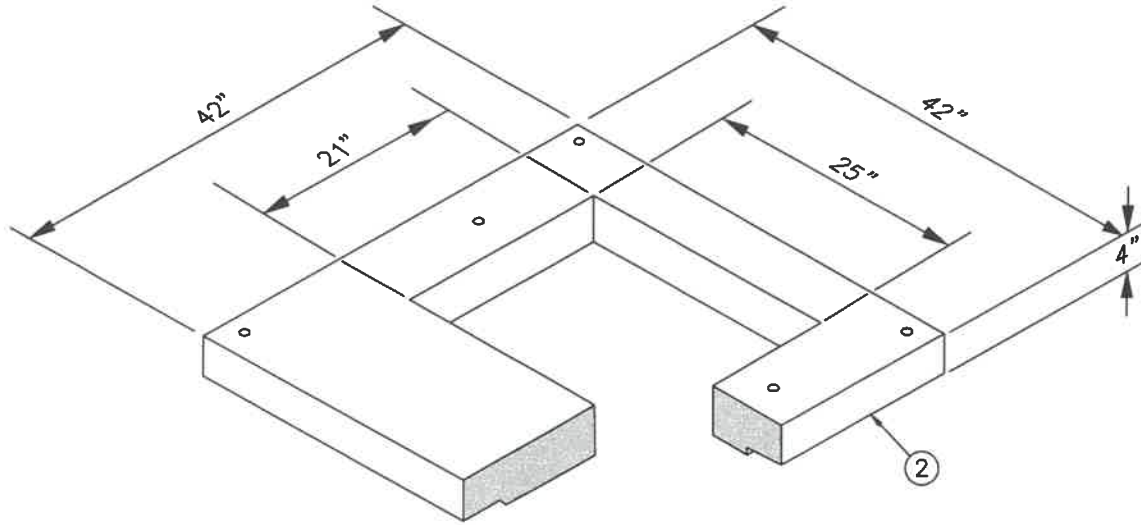
2808 A Street SE  
Auburn, WA 98002  
(800) 892-1538

Vault 4242-LA Base w/grounds (0010520)  
Lid 4242-2125 (0010560)

**H2 Precast**

4919 Contractors Dr.  
East Wenatchee, WA 98802  
(509) 884-6644

VB4242 base with internal grounds  
TPFV2 (4242 vault lid w blackout 2125)



- 1) VAULT, CONCRETE - 48"x 48"x 28" DEEP WITH (2) TWO INTERNAL GROUNDS ON OPPOSITE WALLS AND (1) ONE EXTERNAL GROUND.
- 2) LID, CONCRETE 42"x 42"x 6" WITH 21"x 25" OPENING.

272.V20P.1



VAULT, TRANSFORMER, OPEN COVER  
1-PHASE PAD MOUNT

DWN.  
N. RUMMEL  
APP.

DATE: 7/31/13  
UPDATED: 08-13

DWG. NO.

B. WYATT

12-20

272.V20P.1



## **1-Phase Primary Junction Vault & Cover V-2SL**

The concrete vault and cover will be specified by our Engineering Department after project engineering is complete. Equivalent products must have prior approval of our Engineering Department. The top of the vault (not including the cover) is installed at the final grade level. When the 4" cover is in place, the top of the cover will be 4" above the final grade of the surrounding surface. Conduits are swept up through the open bottom of the vault. All vaults shall be placed on a 6" base of compacted crushed rock.

Materials approved for use by FPUD customers are as follows:

### **Oldcastle Precast**

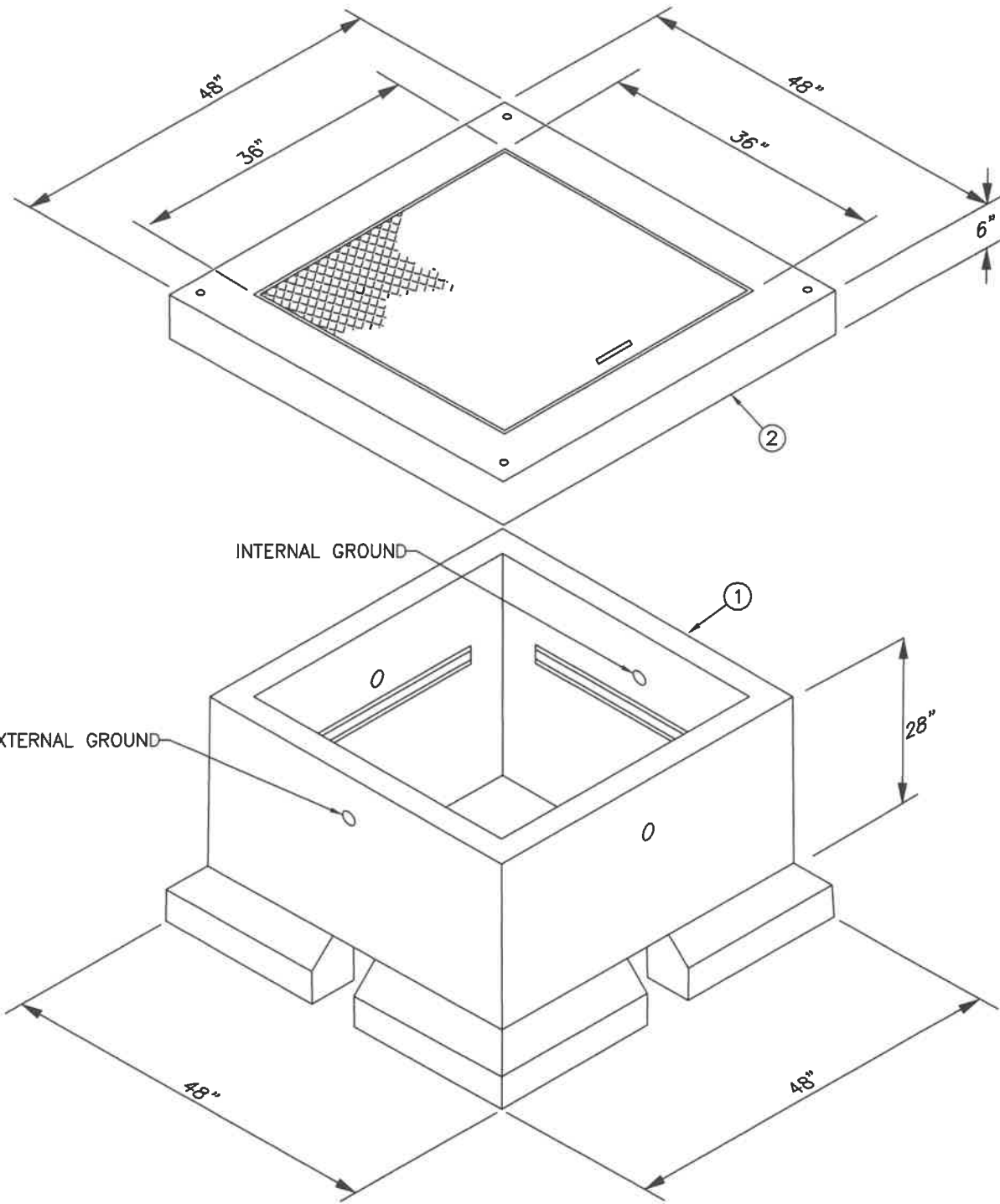
2808 A Street SE  
Auburn, WA 98002  
(800)892-1538

Vault 4242-LA Base w/grounds (0010520)  
LID 55 cover w/ID marker (0060155)  
332 diamond plate door unmarked (3150060)

### **H2 Precast**

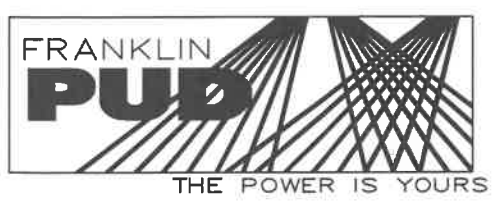
4919 Contractors Dr.  
East Wenatchee, WA 98802  
(509) 884-6644

VB4242 base with internal grounds  
VL550-13 Steel door



- 1) VAULT, CONCRETE – 48" x 48" x 28" DEEP WITH (2) TWO INTERNAL GROUNDS ON OPPOSITE WALLS AND (1) ONE EXTERNAL GROUND.
- 2) LID, CONCRETE 48" x 48" x 6" WITH 36" x 36" STEEL DOOR.

272.V2SL.1.DWG



**VAULT, 1-PH PRIMARY JUNCTION**

DWN. WR APP. D. SAMS	DATE: 8/13 UPDATED: 11/22/2019	DWG. NO.  <b>272.V2SL.1</b>
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**Secondary Junction Vault & Cover:**

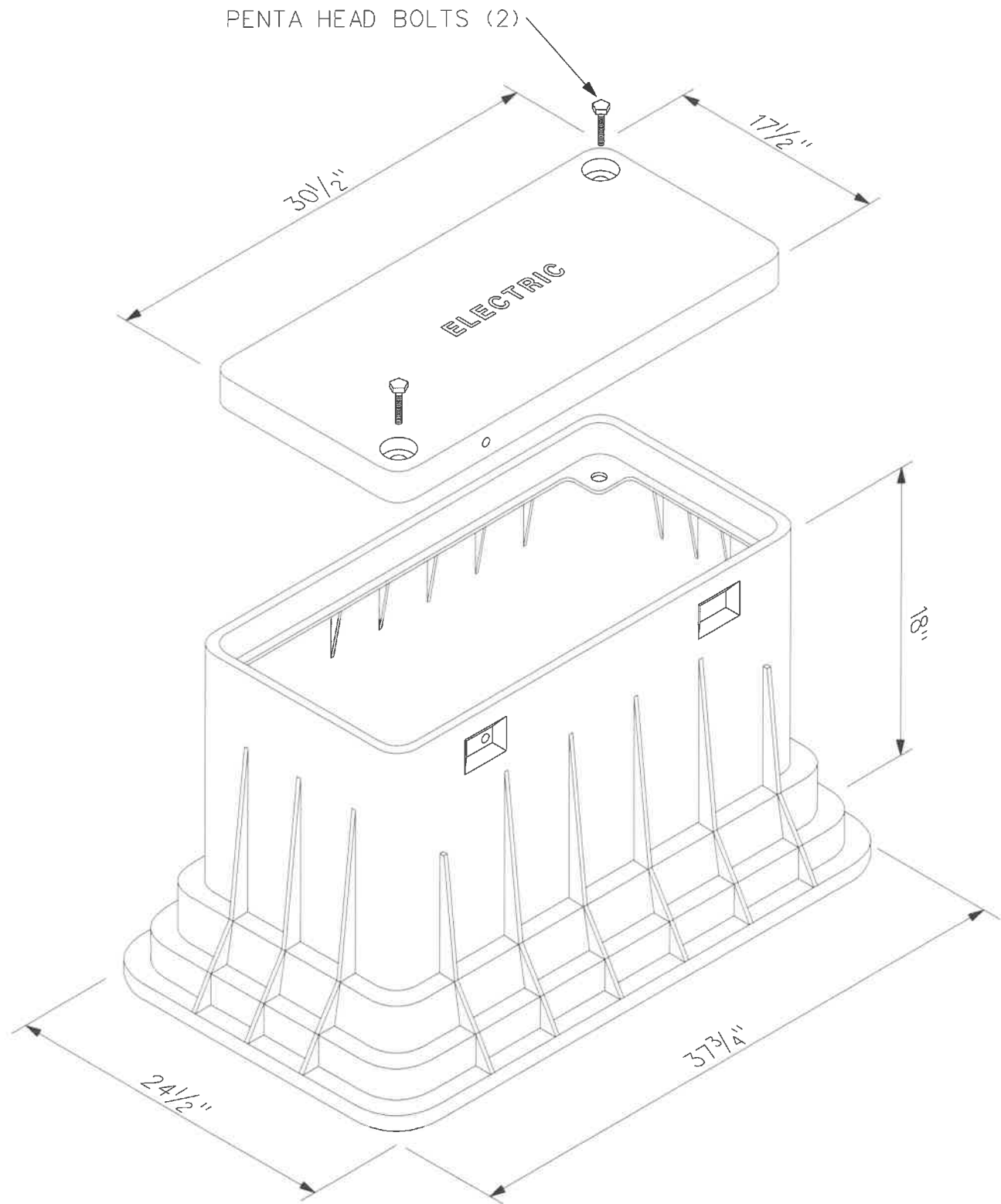
Engineering will specify the plastic/fiberglass vault and cover after project engineering is complete. Equivalent products must have prior approval from Engineering. The top of the vault is installed at the final grade level of the surrounding surface. Conduits are swept up through the open bottom of the vault.

Materials approved for use by customers of FPUD are as follows:

**HD Supply**

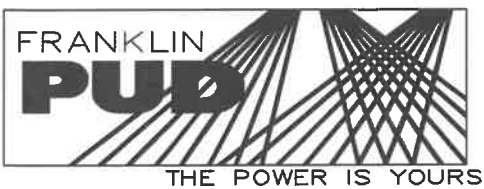
11303 E. Montgomery Drive, Suite 6  
Spokane Valley, WA 99206  
509-928-8292

CARSON 17301019  
Lid shall have penta-head  
L-bolt locks  
COLOR: GREEN



1. FOR USE IN AREAS NOT SUBJECT TO VEHICULAR TRAFFIC

272.VS1.1.DWG



**SECONDARY JUNCTION VAULT**

DWN.  
WR  
APP. D. SAMS

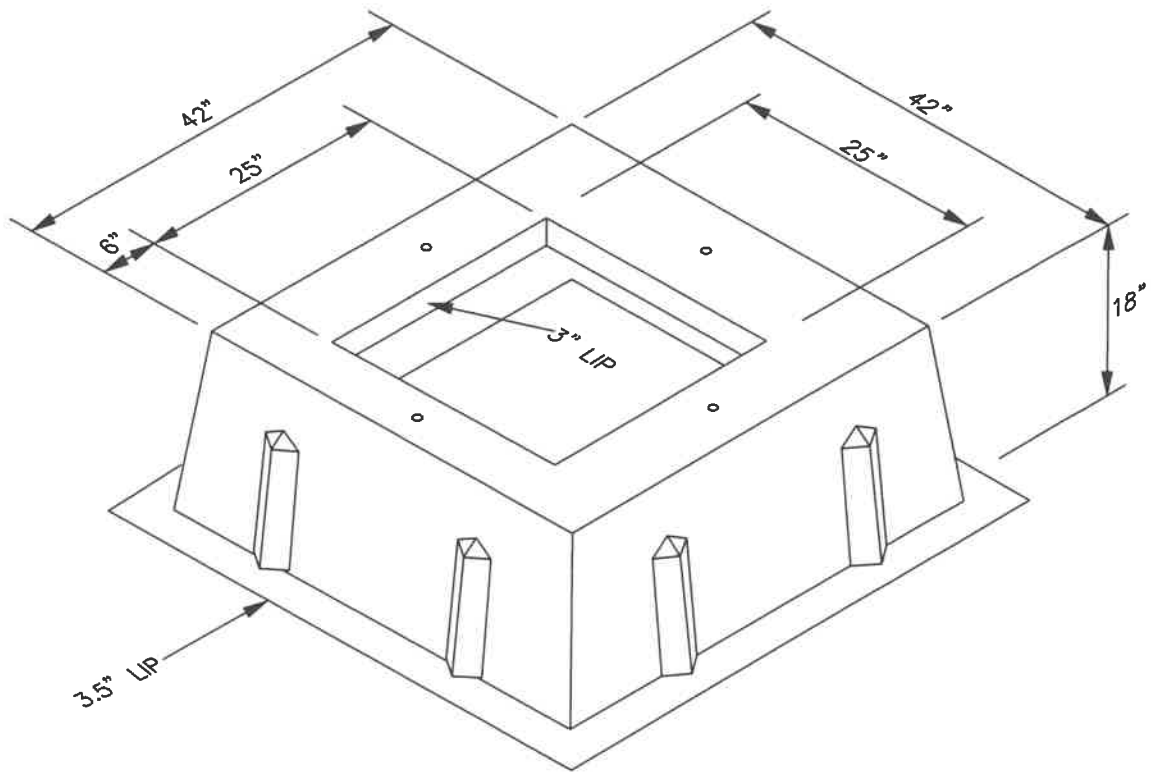
DATE: 1/10/97  
UPDATED: 11/22/2019

DWG. NO.  
272.VS1.1

**Transformer Vault & Cover: Vault, Fiberglass, Transformer 1-Phase Pad Mount**

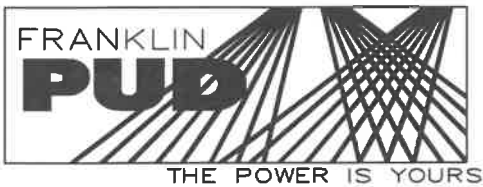
The fiberglass transformer vault will be specified by our Engineering Department after project engineering is complete. Equivalent products must have prior approval of our Engineering Department. The vault is installed so that the top of the vault will be 4" above the final grade of the surrounding surface. Conduits are swept up through the open bottom of the vault.

If specified, this vault may be purchased directly from FPUD.



1) VAULT, FIBERGLASS – 42" x 42" x 18" DEEP WITH 25" X 25" OPENING.

272.V2F.1.DWG



**VAULT, FIBERGLASS, TRANSFORMER  
1-PHASE PAD MOUNT**

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APP. D. SAMS

DATE: 8/13  
UPDATED: 11/25/2019

DWG. NO.  
**272.V2F.1**

**Primary Junction Vault & Cover V-4: Concrete with Steel Cover**

The concrete transformer vault and cover will be specified by Engineering Department after project engineering is complete. Equivalent products must have prior approval of our Engineering Department. The top of the vault (not including the cover) is installed at the final grade level so that when the 6" cover is in place; the top of the cover will be 6" above the final grade of the surrounding surface. Knockouts should be made from the inside of the vault. Completely remove center knockout in bottom of vault prior to installation to allow vault to drain. All vaults shall be placed on a 6" base of compacted crushed rock.

Materials approved for use by customers of FPUD are as follows:

**Oldcastle Precast**

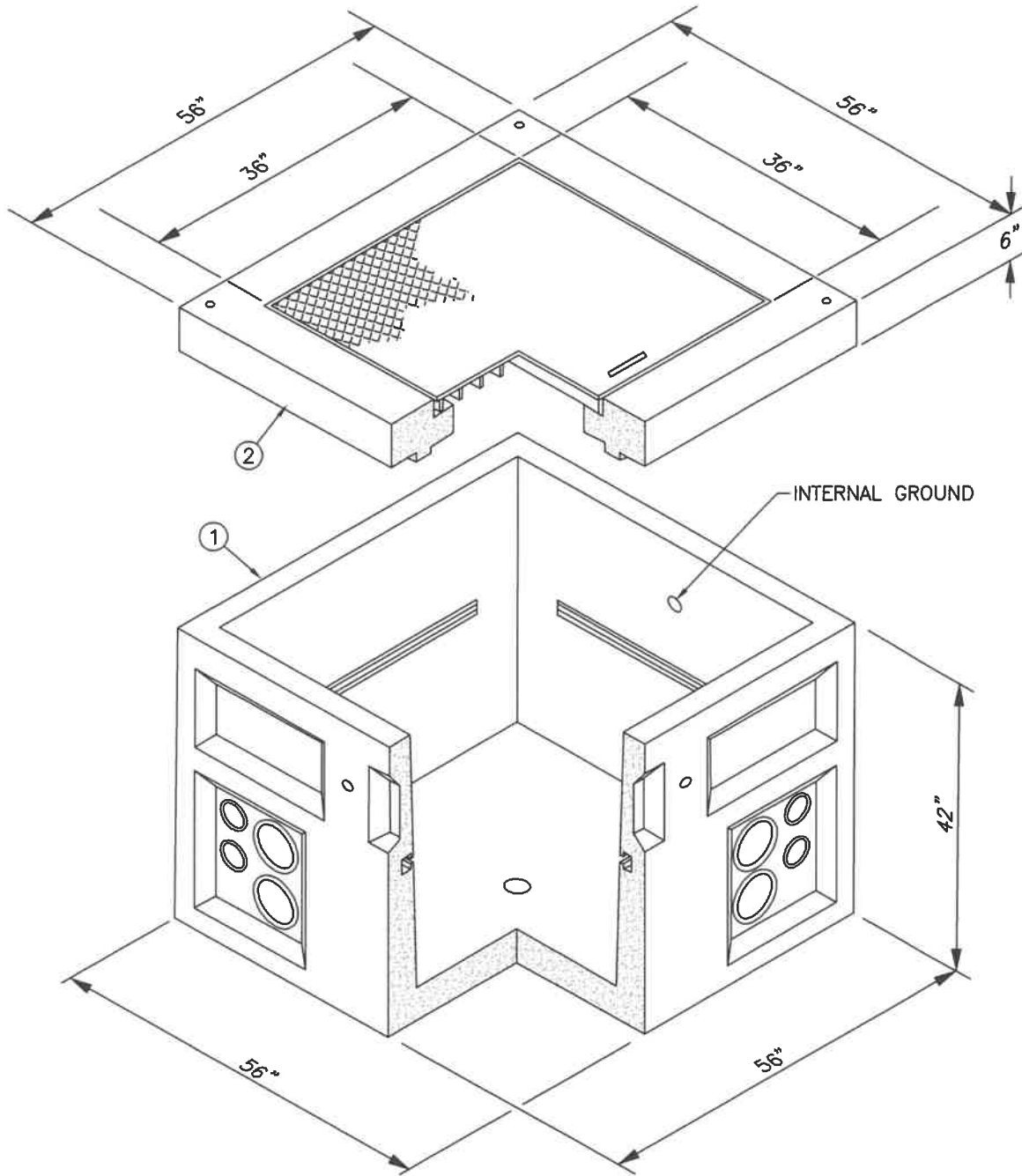
2808 A Street SE  
Auburn, WA 98002  
(800) 892-1538

Vault 504-LA w/irons and grounds (0060025)  
Lid 55 Cover w/ID marker (0060155)  
332 Diamond plate door unmarked (3150060)

**H2 PreCast**

4919 Contractors Dr.  
East Wenatchee, WA 98802  
509-884-6644

VB554-B-F with internal grounds  
VL550-13 Steel door



**NOTES:**

- 1) VAULT, CONCRETE – 56”x 56”x 42” DEEP WITH (2) TWO INTERNAL GROUNDS ON OPPOSITE WALLS.
- 2) LID, CONCRETE 56”x 56”x 6” WITH 36”x 36” STEEL DOOR.

272.V4.1.DWG



**PRIMARY JUNCTION VAULT  
CONCRETE WITH STEEL LID COVER**

DWN.  
WR  
APP. D. SAMS

DATE: 8/13  
UPDATED: 11/25/2019

DWG. NO.

272.V4.1



**Primary Junction Vault & Cover V-6: Three (3) Piece with Steel Lid Covers**

The concrete transformer vault and cover will be specified by Engineering Department after project engineering is complete. Equivalent products must have prior approval of our Engineering Department. The top of the vault (not including the cover) is installed at the final grade level so that when the 12” cover is in place; the top of the cover will be 12” above the final grade of the surrounding surface. Knockouts should be made from the inside of the vault. Completely remove center knockout in bottom of vault prior to installation to allow vault to drain. All vaults shall be placed on a 6” base of compacted crushed rock.

Materials approved for use by customers of FPUD are as follows:

**Oldcastle Precast**

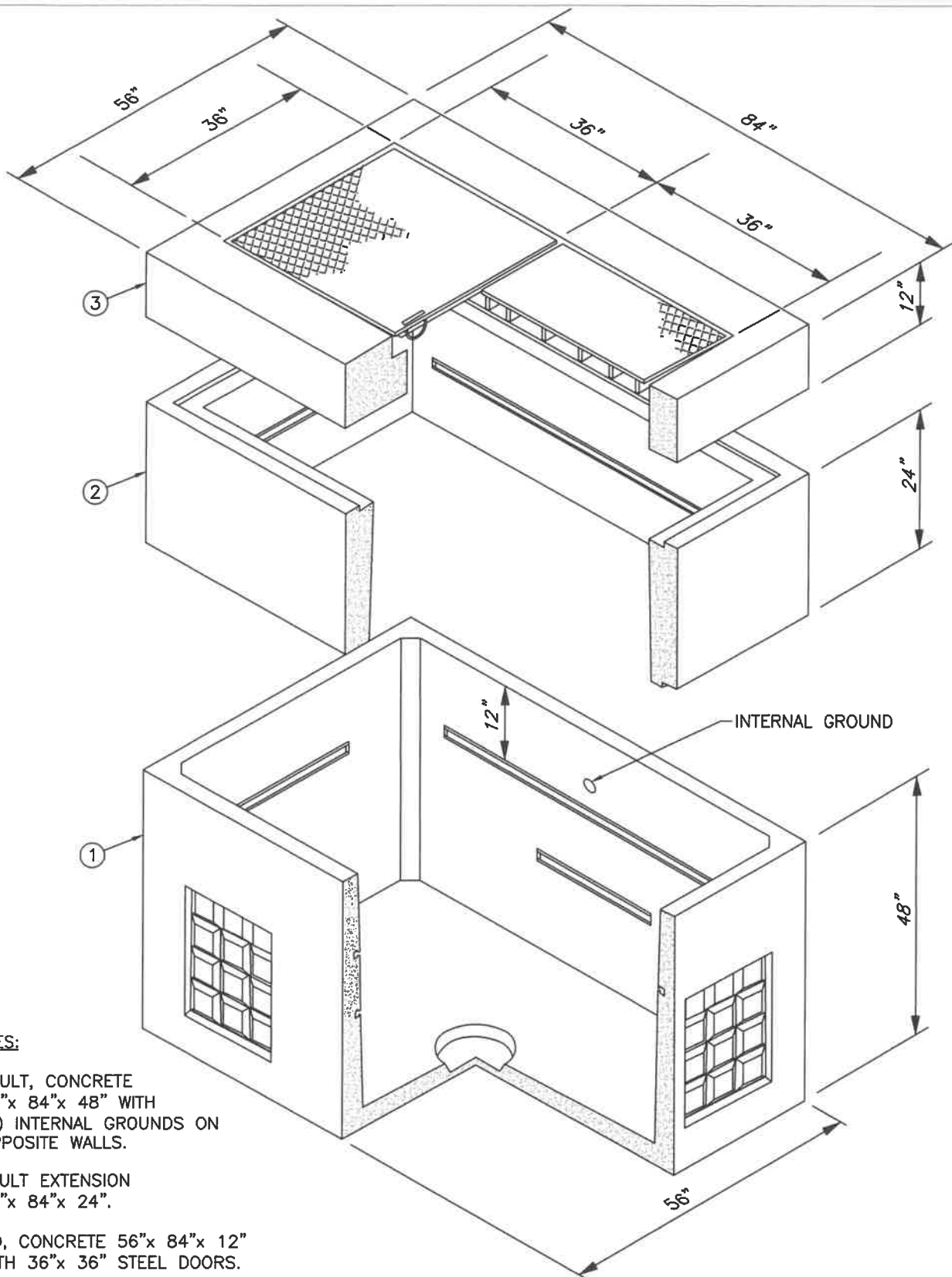
2808 A Street SE  
Auburn, WA 98002  
(800) 892-1538

Vault 575- LA base with internal ground (0080005)  
Extension 57R-24 w/strut (0080350)  
Lid 57-2-33F cover (0080350)  
2-332 diamond plate doors (3150102)

**H2 PreCast**

4919 Contractors Dr.  
East Wenatchee, WA 98802  
509-884-6644

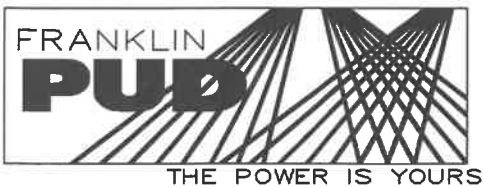
VB-575-B-F with internal grounds  
VR570-24” with strut vault riser  
VL570-23 Steel door



**NOTES:**

- 1) VAULT, CONCRETE  
56"x 84"x 48" WITH  
(2) INTERNAL GROUNDS ON  
OPPOSITE WALLS.
- 2) VAULT EXTENSION  
56"x 84"x 24".
- 3) LID, CONCRETE 56"x 84"x 12"  
WITH 36"x 36" STEEL DOORS.

272.V6.1.DWG



**PRIMARY JUNCTION VAULT  
CONCRETE WITH STEEL LID COVER**

DWN.  
WR  
APP. D. SAMS

DATE: 8/13  
UPDATED: 11/25/2019

DWG. NO.  
**272.V6.1**