TECHNICAL SPECIFICATIONS

OIL FILLED PADMOUNTED THREE PHASE WYE-WYE STEPDOWN TRANSFORMERS

I. GENERAL

This specification covers three phase wye-wye padmounted transformers and is used in conjunction with the Specifications for Distribution Transformers-General.

II. COMPONENTS

All components shall be installed in accordance with component manufacturers' instructions.

III. BUSHINGS, TERMINALS AND ACCESSORIES

III.1. A dial indicator oil level gauge will be supplied and installed in the secondary compartment of each transformer.

III.2. Six high voltage epoxy or nylon bushing wells with removable studs (Components 701-9185-720, GE 9U03-BRB001 or CooperB4956B94H01) suitable for receiving load break inserts to permit use on a loop feed system and eight parking brackets shall be supplied per Exhibit III. All 4 kV transformers shall be equipped with 25 kV components except fuses and isolation links, as shown below.

III.3. Three 26Kv high voltage bushing wells and three suitable parking brackets for use with parking bushings shall be installed in the low voltage compartment. The bushing wells listed above will be appropriate except for 4160GrndY/2400 secondary transformers of 1500kVA and larger. 1500kVA and larger transformers with 4kv secondary shall have 600 amp non-load break bushings.

III.4. Three 26kV bushing inserts with drain lug including dust covers shall be supplied and installed in the low voltage compartment except when 600 amp non-load break bushings are required. See III.3.. Above.. JEA ITEM ID "BUSWI001" as approved in the JEA Master Mater Catalog, Electric are the only units acceptable.

URL = https://www.jea.com/MaterialsCatalog/emmc.pdf

III.5. The Neutral low voltage bushing shall be supplied with a 6 hole NEMA spade for 500 KVA and below, the other three low voltage bushings shall be supplied with four hole NEMA spades for 500 KVA and below and 750 KVA and above units shall be supplied with 8 hole NEMA spades.

III.6. The Neutral low voltage Bushing shall be grounded using a stranded cable or other method that does not interfere with installation of the JEA connector system using all but the last two bolt holes of the Neutral Spade.

III.7. Two tank ground lugs shall be supplied and installed (Anderson GTCS-34A, Dossert TGC8-50M, ITT Two tank ground lugs shall be supplied and installed (Anderson GTCS-34A, Dossert TGC8-50M, ITT Blackburn TTC2, Maclean Power Systems BVC-207 or Penn-Union HGSE-020). One ground lug shall be installed in the primary compartment and one ground lug shall be installed in the secondary compartment about 17 inches below the primary bushings and about 10 inches from the compartments divider.

III.8. The tank top shall have a 2.5 square foot removable plate for access to the bushings and fuse connections allowing entry of the upper torso inside the tank.

III.9. Oil-drip shields shall be provided beneath the bayonet fuses to prevent oil from dripping on primary bushings. Each shield shall be constructed so that it will not interfere with the fusing operation of the transformer.. 750 KVA and larger transformers shall have a steel drip trays welded to the tank wall angling down and toward the right, close to the center divider so oil will run down the divider.

III.10. Under-oil arrestors (GE or Cooper) with disconnect switch shall be furnished in all 4 kV padmounted transformers.

III.11. A temperature gauge with well and temperature sweep hand to record highest temperature reached since reset will be included (Qualitrol 150-101-01).

III.12. Transformers shall be equipped with oil-immersed bayonet overload sensing fuse holders with RTE series or ERMCO bayonet fuses. In addition, the transformers shall also be equipped with internal oil-immersed isolation links to protect against internal transformer faults. Isolation links shall be RTE. Fuse and isolation link are to be sized in accordance with JEA Underground Distribution Standards at the following URL: http://www.jea.com/business/services/contractor/standards.asp by selecting "Electric Distribution Standards"; then, "Underground Electric Distribution Standards"; then, "3. 1. Fuse Coordination and Transformer Fusing" under "IV. Equipment" sub section "3. System Protection". Tables 6 through 9. Alternate suppliers to the above listed components will be evaluated for use.

III.13. Alternate suppliers to the above listed components will be evaluated for use.

III.14. H0-X0 Grounding Strap needs to be Braided Copper.

III.15. One Load Break Switch shall be installed inside the transformer cabinet on the Primary side before the fuse (example location can be seen in EXHIBIT I).

IV. ADDITIONAL REQUIREMENTS

IV.1. Transformers shall be labeled with the JEA ITEM ID on the outside of the transformer. The label shall be placed on the back of the transformer cabinet on the top right so as to be visually viable to our fork lift operators (primary side of the transformer). This labeling shall have a black background with yellow reflective characters and are to be made with 3M Scotchlite Sheetings (Series 3200) and 3M Ink and Toners. Individual characters or a single label may be used. Labels are to be 1" tall with ¾" characters. Other labeling to accomplish this purchase must be approved by the Design, Construction and Material Standards department of JEA before implementation.

IV.2. KVA rating decals or painted stencils shall be painted on the side of the tank. The 4 kV source rating decals shall be painted on the side of the tank above the KVA decal. All decals or painted stencils shall be yellow or black to afford a sharp contrast with the tank finish.

IV.3. All three phase compartment doors shall be designed with a three point latch so the secondary terminals are accessible without opening the primary compartment, i.e. a deliberate action is necessary to gain access to the primary terminations.

IV.4. JEA normal practice is to use bayonet fuses to energize and de energize Padmount Transformers when only secondary connection work is required. The removal and replacement of the bayonet fuses must be able to be accomplished with the Hot Stick in a horizontal position. Cabinet design and door height must allow for this function. This can be a problem on smaller KVA units and may require the cabinet top to be higher than it might be for other users.

IV.5. Three 5/16" Dia. holes shall be Drilled or Punched into the Skirt of the enclosure in order to accommodate three FCI (Purchased Separately). These holes are to be capped during shipment to prevent any water leakage. The holes shall be located on the Transformer's Primary side at the top of the Skirt even with the center line of the door. (see EXHIBIT II for example location).

V. IMPEDANCE

Unless otherwise noted, Impedance Voltage, as measured on the rated voltage tap or connection shall be 5.75% on all classifications on KVA sizes 750 and larger. Tolerances of impedance voltage shall be + 7.5% of specified value.

VI. MOUNTING

VI.1. Transformers shall be compatible with JEA standard concrete mounting pads. (See Exhibit V).

VI.2. The base of the assembly shall be provided with a suitable flange as shown on Exhibit IV, to permit anchoring the unit on the pad from within the cable terminating compartments.

VI.3. Two stainless steel hold down cleats shall be provided for bolting each transformer into place. The cleats shall be supplied for anchoring the front sill to the pad. The cleats shall be attached to the grounding lug to prevent loss during shipping.

VII. SAFETY LABELS

Bilingual Warning and Danger labels shall be in accordance with NEMA Standards Publication No. 260-1982, and shall be placed as follows:

VII.1. A warning label shall be mounted on the outside of the latched door as close as possible to and directly above the door handle.

VII.2. A danger label shall be mounted inside and centered on the face of the transformer directly below the primary and secondary bushings, which allows it to be viewed when the door is in the open position.

VIII. SHRUB LABEL

A Shrub Label (Almetek Industries, Inc. Catalog #JEASHRUBTX or Electromark Catalog #JEA021-X-SX-I13) shall be supplied and installed above the door locking handle on either the secondary or primary door next to center edge of either door.

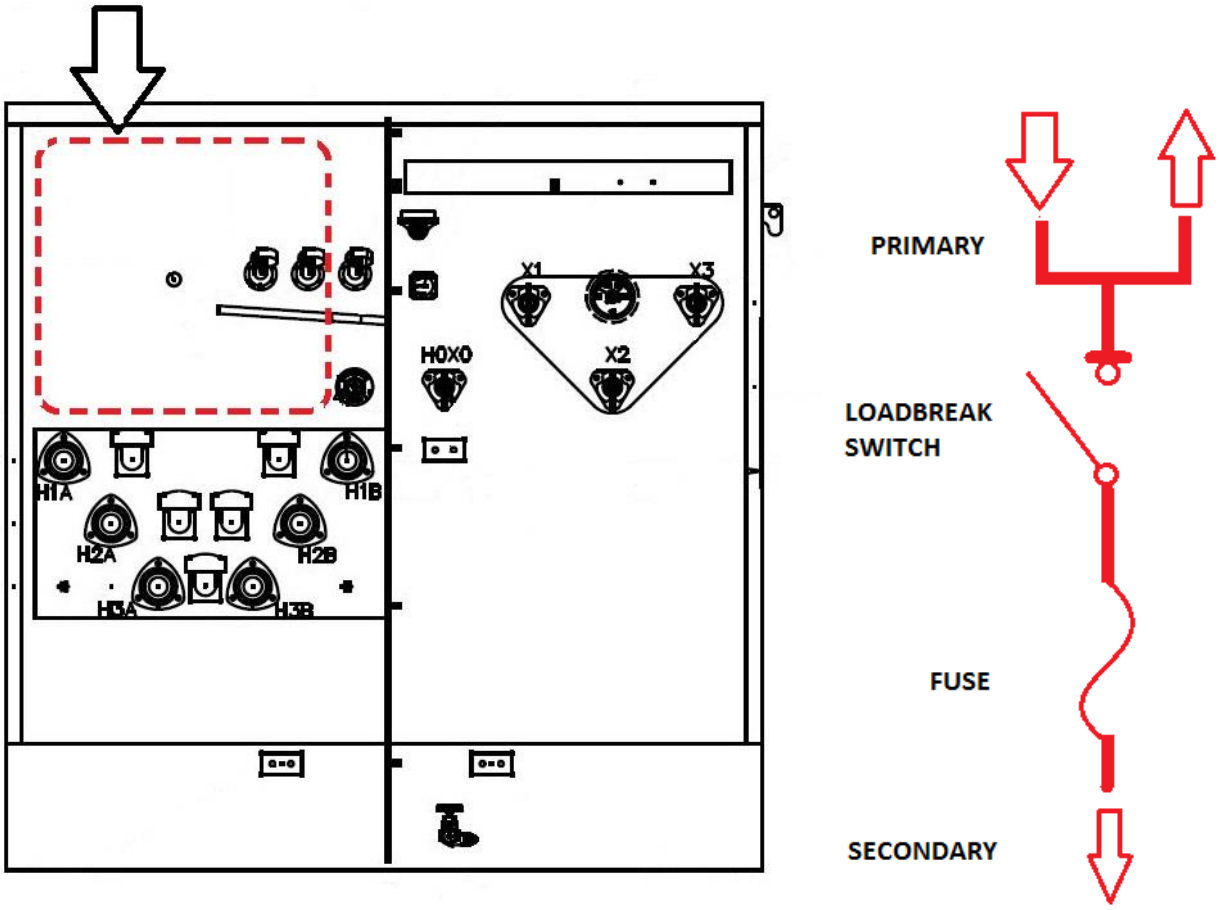
IX. RATING

The following is the "Transformer Ratings" table for primary and secondary voltages, BIL and KVA ratings of those transformers being bid:

TRANSFORMER RATINGS

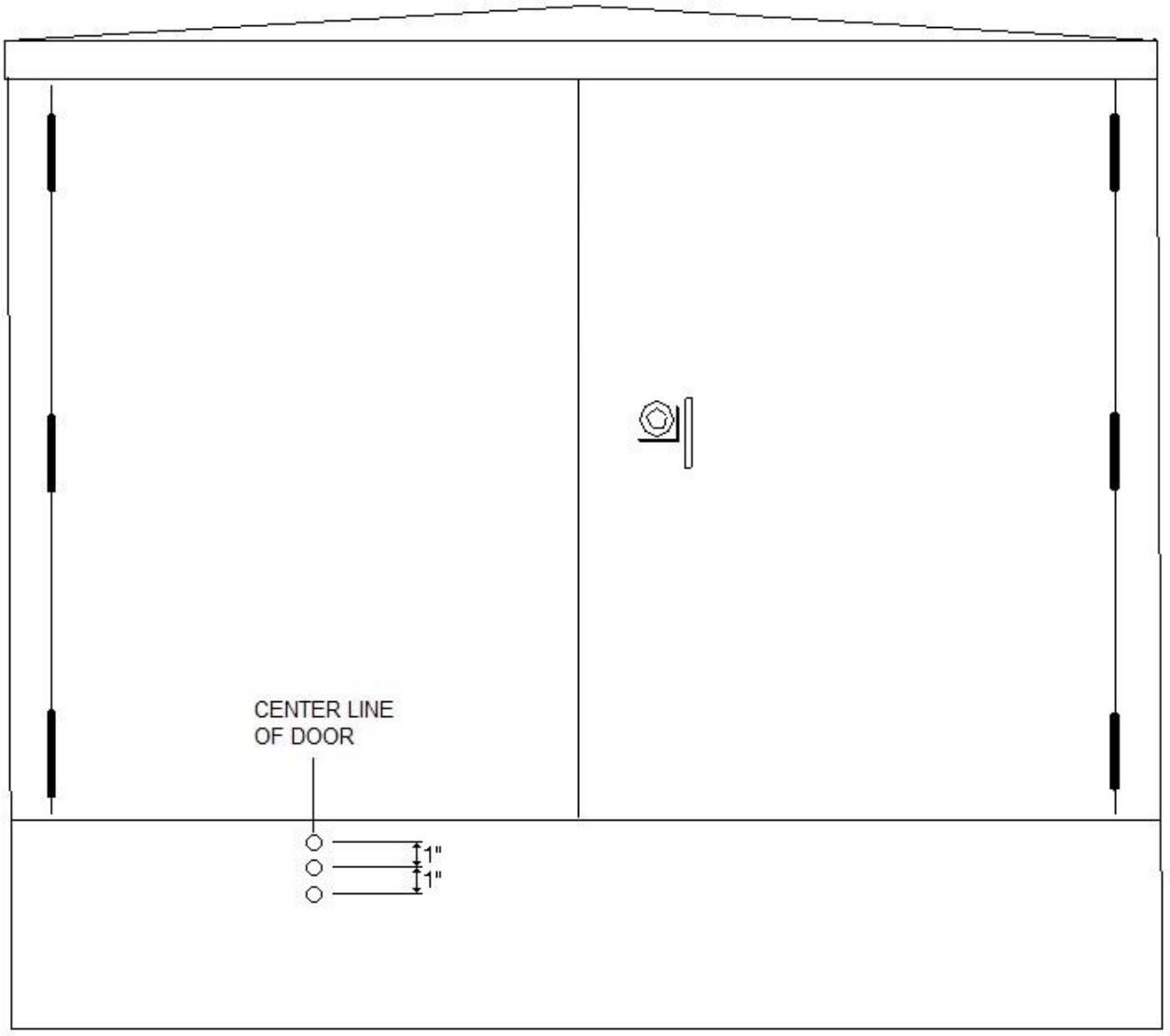
ITEM ID	KVA SIZES	PRIMARY VOLTAGE	SECONDARY VOLTAGE	BIL (KV)	(*)
TRAPF001	1000	13200 GrdY/7620	4160 GrdY/2400	95	
TRAPF004	2500	13200 GrdY/7620	4160 GrdY/2400	95	*
TRAPF006	3750	13200 GrdY/7620	4160 GrdY/2400	95	*
TRAPF003	1000	25565 GrdY/14760	13200 GrdY/7620	125	
TRAPF002	2500	25565 GrdY/14760	4160 GrdY/2400	125	*
TRAPF005	3750	25565 GrdY/14760	4160 GrdY/2400	125	*

* Due to unit weight, delivery must be scheduled with the receiving location 72 hours in advance of arrival.



EXAMPLE LOCATION OF A LOAD BREAK SWITCH ON
A THREE PHASE PADMOUNT TRANSFORMER

EXHIBIT I

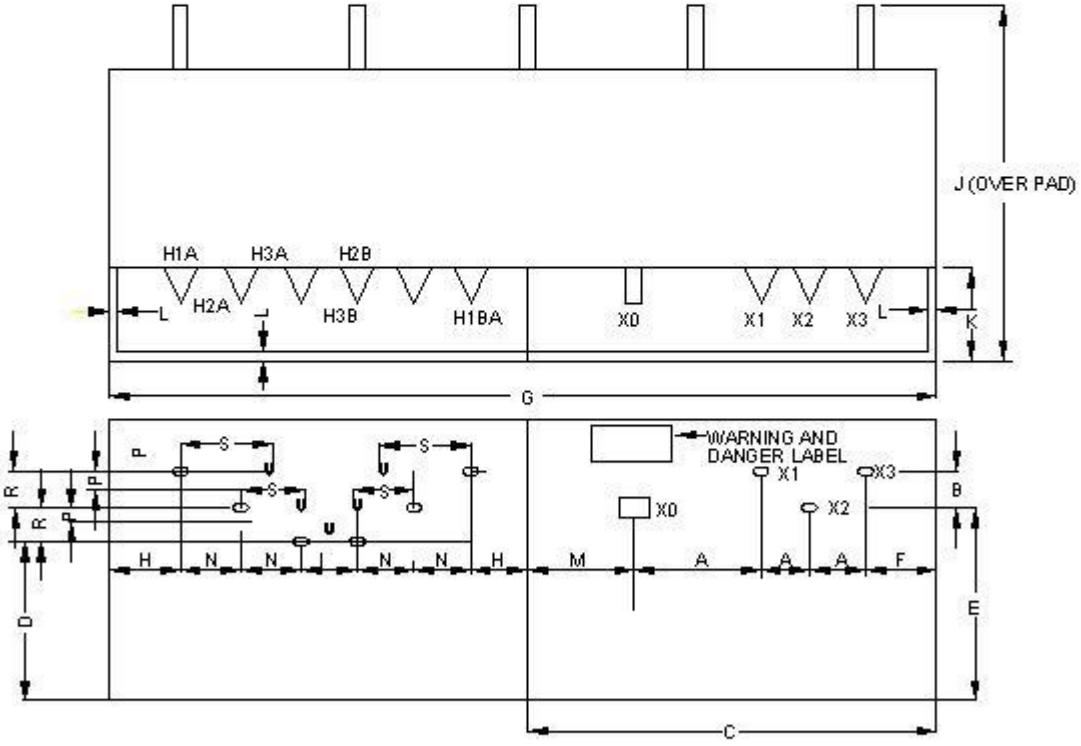


EXAMPLE LOCATION OF THE THREE 5/16” DIA. HOLES ON
THREE PHASE PADMOUNT TRANSFORMER

EXHIBIT II

	75 kVA - 500 kVA	750 kVA - 3750 kVA
	DIMENSIONS	DIMENSIONS
A	8" ± 1/8"	8" ± 1/8"
B	8" ± 1/8"	8" ± 1/8"
C	31" MIN	31" MIN
D	27" ± 1/8"	27" ± 1/8"
E	31" ± 1/2"	46" ± 1/2"
F	5-1/2" MIN **	5-1/2" MIN **
G	64" MIN(94" MAX)***	64" MIN(94" MAX)***
H	3-1/2" MIN **	3-1/2" MIN **
I	4kV/13kV=9" MIN 26kV=12" MIN	4kV/13kV=9" MIN 26kV=12" MIN
J	70" MAX	94" MAX
K	23" MIN	23" MIN
L	3/4" MIN (1-1/2" MAX)	3/4" MIN (1-1/2" MAX)
M	5.5" MIN	5.5" MIN
N	4-1/2" MIN	4-1/2" MIN
P	1" MIN	1" MIN
R	6" MIN	6" MIN
S	6.5"	6.5"

** "CLEAR" OF CABINET DOOR LIP, SIDE BRACING, ETE.
*** TANK, CABINET AND COOLING FINS MUST REMAIN OVER PAD.
COOLING FINS FOR 3750 kVA UNITS MAY EXTEND UP TO 12" BEYOND TRANSFORMER PAD.



THREE PHASE TRANSFORMER
75 KVA -3750 KVA
DRAWING NOT TO SCALE

EXHIBIT III

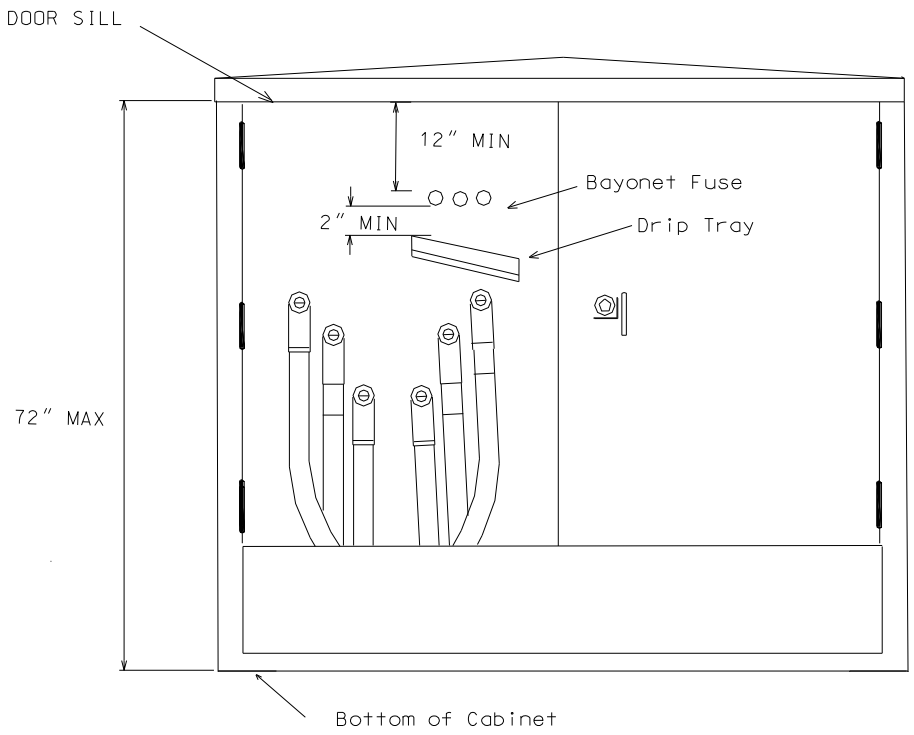
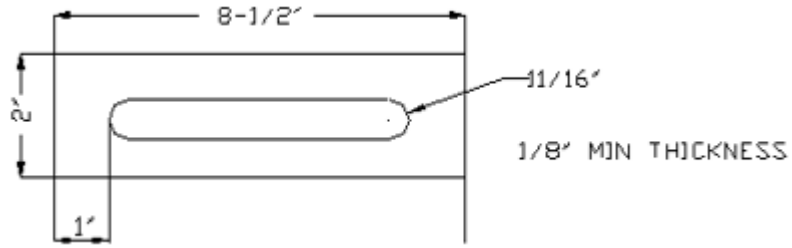
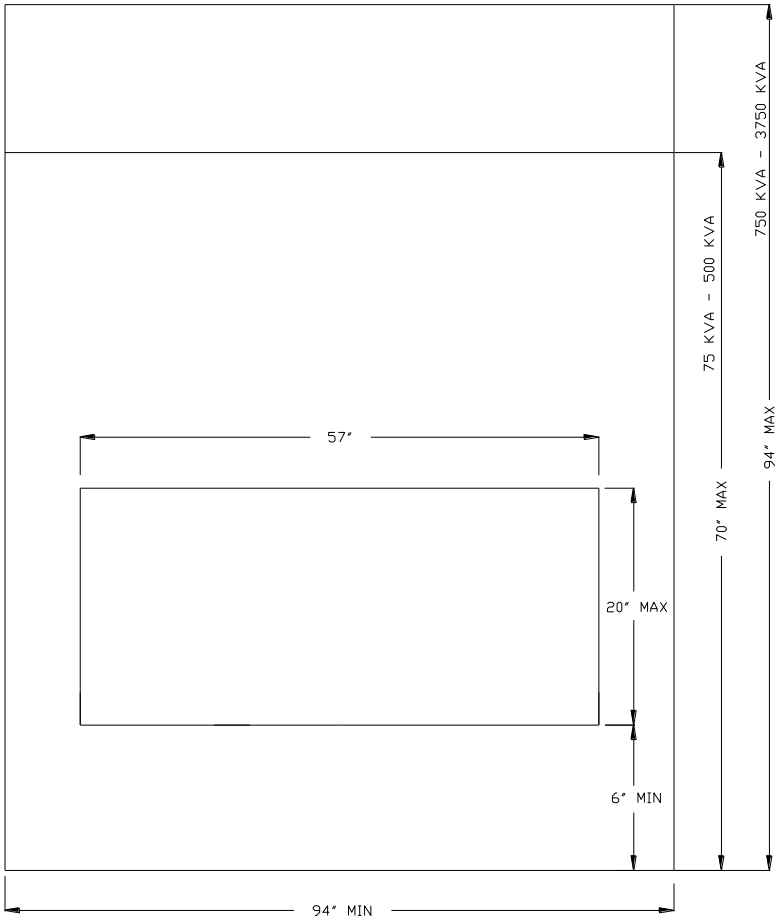

DOOR SILL
12" MIN
Bayonet Fuse
2" MIN
Drip Tray
72" MAX
Bottom of Cabinet

EXHIBIT IV


8-1/2"
2"
11/16"
1/8" MIN THICKNESS
1"



THREE PHASE TRANSFORMER
75 KVA - 3750 KVA: STANDARD DIMENSION SINGLE 3-PHASE PADMOUNT
CONCRETE MOUNTING PAD DIMENSIONS

EXHIBIT V

Adjustments

Date	Change	Author
3/27/17	Added under Section III (Bushings, Terminals and Accessories), III. 14. H0-X0 Grounding Strap needs to be Braided Copper.	PARKTA
3/20/19	Added wording for One Load Break Switch at III.15 pg. 2 of 6	PARKTA
3/20/19	Added EXHIBIT I in connection to III.15 on page 4 of 6	PARKTA
3/20/19	Added wording for FCI holes at IV.5 pg. 2 of 6	PARKTA
3/20/19	Added EXHIBIT II in connection to IV.5 on page 5 of 6	PARKTA
3/20/19	Removed “Part B” from the title	PARKTA
7/20/20	Added Exhibit III, Fixed text in main spec referring to Exhibit	PARKTA
7/20/20	Added Exhibit IV, Fixed text in main spec referring to Exhibit	PARKTA
7/20/20	Added Exhibit V, Fixed text in main spec referring to Exhibit	PARKTA
10/29/20	Section III. Removed Reference to “Approval prior to bid opening is required”	PARKTA
5/5/22	Added info about new TRAPF005 Unit	PARKTA
8/04/23	Updated Header/Footer	PARKTA
8/04/23	Corrected Cleat drawing in Exhibit IV	PARKTA
8/04/23	Corrected URL code in III.4	PARKTA
12/11/24	Update Transformer Rating table on pg 3	PARKTA
12/11/24	Added TRAPF006 to Transformer Rating table	PARKTA