

**Substation & Transformer Rooms Civil Design**  
**(For Substation & Transformer Rooms in First Basement Level)**

S #	AADC Standard Requirement	Compliance (Customer to fill)			AADC Review (AADC Engineer to fill)		
		YES	NO	N/A	Accepted	Not Accepted	Accepted with Comments
1	All H.V. & Transformer rooms clear height internally should be at least <b>3m from F.F.L.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Following minimum clearances are adopted: - <b>1500 mm between transformers</b> - <b>1000 mm between transformer and wall</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Transformer foundation shall be H-type constructed of reinforced concrete min strength <b>40N/mm<sup>2</sup></b> , with depth designed to withstand equipment load.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Structural details for the trenches and transformer foundation are included in the shop drawings attached.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Floor and trenches concrete surfaces shall be treated with surface hardener. Floors & Trenches finishing shall be 4 mm epoxy screed and coated with epoxy paint system of suitable color.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	The width of the doors are minimum <b>1.2 meters for TRM</b> and <b>2.5 meters for HV Panels Rooms &amp; QRMs</b> . Doors Height shall not be less than 3m from F.F.L.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Transformer Room Door have minimum clear width <b>2.7 m</b> . Doors Height shall not be less than <b>3m from F.F.L.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	The trench dimension for H.V cables should be Min 80 cm X 80 cm Depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<b>Water drain system</b> shall be provided in substation room. Details to be attached.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Safety facilities shall be provided (fire fighting system, CO2 extinguisher cylinders, danger signs, etc.). Customer shall get the approval for the fire fighting system from Civil Defense Authority and a copy of approval shall be provided to AADC before equipment installation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Trenches shall be covered with hot dipped galvanized steel grating, thickness not less than <b>5cm</b> , designed to withstand equipment load.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Minimum <b>5 m</b> vehicle access available to the basement in case of entry / exit from same location (dual carriage way). Minimum 3 m vehicle access available in case of entry and exit from different locations. The access shall be designed to carry the live load of truck loaded with equipment (transformer, HV panels etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	The minimum clearance from access up to substation location is adequate to transport a distribution transformer / switchgear panel loaded on a suitable vehicle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	The access should be connected to the nearest main road.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<b>24 hours</b> access to the S/S room for the AADC (O&M crew).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<b>Clear parking space</b> allocated for the O&M crew to park their vehicle while attending to the equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Proper railings are provided to shift the transformers up to the loading yard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	The loading and unloading mechanism for transformers & HV Panels shall be clearly described in detail on the drawings for AADC review.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	Finished floor level shall be min. <b>35cm</b> above walkway level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Hooks provided on the opposite wall of transformer room (for transformer pulling)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	The S/S name plate shall be provided by Customer and shall be fixed on the wall of electrical room in a visible place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Structural design and structure integrity is the sole responsibility of the Contractor/ Consultant. AADC is under no circumstances responsible of any failure or damage that might occur due to mistakes in structural design and detailing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Transformer door material shall be hot dipped galvanized steel grill type (all details and sections shall be included in the shop drawings).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Consultant Sign & Stamp**

**Contractor Sign & Stamp**

**General Requirements:** the consultant/contractor shall comply with these general requirements:

- 1- **Dry-type transformers** is preferable in case the customer will supply the transformer.
- 2- Straight through joints for main HV cables to be avoided within the constructed area.
- 3- The HV Panel room shall be **air-conditioned**.
- 4- The transformer room shall be provided with **forced ventilation** to maintain the operating temperature.
- 5- Emergency Exit Door provided at H.V. room.
- 6- Power supply points and wall mounted light points (dust proof) are provided as per power division requirement (All wiring shall be done in Steel/ GI Conduit). Backup/emergency lights to be provided
- 7- Battery requirement shall be sized considering both HV Panels as well as DMS facility.
- 8- Batteries shall be located in a separate room. The room shall be provided with proper exhaust fans, eye-wash etc.
- 9- The battery charger-cum-distribution board, DMS cabinet etc. can be located in the HV panel room without interfering with the HV panel alignment and clearances.
- 10- The number of H.V cables is suitable for the trench dimension as per Al Ain Distribution Company specifications.
- 11- Cable trays should be provided in S/S room. (Except for the power cables which will be laid in cable trenches.
- 12- Cable trays are provided in S/S room at **35 cm** above trench level.
- 13- 2 Nos of 15 Amp switch sockets weather proof should be provided inside each S/S and will be approved as per AADC regulations by CSD L.V section
- 14- Earthing & Bonding of all equipment shall be done as per standards.
- 15- In case more than one transformers, identification labels shall be provide for each transformer

**Approval from Project Delivery Division:** Additional Comments

.....

.....

.....

.....

.....

**APPROVED**

**APPROVED WITH COMMENTS**

**REJECTED**

**SIGNATURE**

**Civil Engineer**

**Department Manager**

\*In case your application has been rejected for the first time by PDD, then you shall comply with PDD comments and resubmit the same application along with the new revised drawings and old drawings for final approval.

**Approval from Project Delivery Division after Resubmission:** Additional Comments

.....

.....

.....

.....

.....

**APPROVED**

**APPROVED WITH COMMENTS**

**REJECTED**

**SIGNATURE**

**Civil Engineer**

**Department Manager**