

**Substation & Transformer Rooms Civil Design
(For Substation & Transformer Rooms on Ground 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	The Sub-Station / Transformer Rooms is located along 6 meter wide access roads. The doors are on the access road side.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The access road is connected to the nearest main road.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	24 hours access to the S/S room for AADC (O&M crew)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	H.V. room separated from transformer room by a block wall.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Finished floor level for all Substations / Transformer Rooms are min. 35cm above walkway level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	All H.V. & Transformer rooms clear height internally should be at least 3.5 m from F.F.L.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Slot in the roof (for transformer installation) should be provided with minimum 25cm width. The slot shall be completely open up to the slab edge and through the façade, with pre-cast concrete cover above. Slot cover shall be made from reinforced concrete U- shape and interlocked type.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	In case there is no possibility for ceiling slot , suitable approved system for transformer installation shall be provided with the following min. requirements : <ul style="list-style-type: none"> • Proper railing should be provided to shift the transformers up to the loading yard. • The clearance should be adequate to transport a distribution transformer /switchgear panel loaded on suitable vehicle . • Hook should be 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"/>
9	Transformer foundation shall be H-type constructed of reinforced concrete min strength 40N/mm² , 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"/>
10	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"/>
11	Floors and walls for cable trenches shall be constructed of reinforced concrete 40N/mm² . Floor thickness shall not be less 20cm , and wall thickness not less 15cm .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	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"/>
13	Emergency Exit Door provided at H.V. room. In case if the S/S have more than 4 H.V panels the customer must provide emergency door in additional to the existing doors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	The width of the doors are minimum 1.2 meters for TRM and 2.5 meters for HV Panels Rooms & QRM s. Doors Height shall not be less than 3m from F.F.L . Door material shall be aluminum louver.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Transformer Room Door have minimum clear width 2.7 m . 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"/>

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		YES	NO	N/A	Accepted	Not Accepted	Accepted with Comments
16	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"/>
17	Following minimum clearances are adopted: - 1500 mm between transformers - 1000 mm between transformer and wall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	The customer shall provide a platform min. 50cm before the ramp starts. (shown in the drawings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	All internal clear dimensions for trenches are min. 80cm width & 80cm depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Trenches shall be covered with hot dipped galvanized steel grating, thickness not less than 5cm , designed to withstand equipment load	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Cable trenches shall be executed with at least 1% slope towards drainage points or pump sumps, which shall be provided for each section or at least at both ends of the trench or basement with water drainage system for the trenches or basement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Internal painting shall be weather proof (epoxy or acrylic paint).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	The drainage for the S/S to be connected from the trench to the main drainage network of the building if possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Mechanical ventilation (air conditioning) or natural ventilation (concrete calustra on walls and louvers in doors) shall be arranged for all equipment specially H.V & L.V Switchgear .Details shown on the drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Safety facilities shall be provided (fire fighting system, CO2 extinguisher cylinders, danger signs, etc .)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	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"/>
26	Two Channels for Fixing TRM to be shown, the distances between 4 Holes in the channels must be shown (Distance between holes should be as per manufacturer's shop drawings).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	The S/S name plate shall be provided by Customer and shall be fixed on the wall of electrical room in a visible place. In case more than one transformers, identification labels shall be provide for each transformer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Latch -suitable for AADC's approved Master lock - to be provided for all the S/S's doors, No cylindrical lock to be provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

- 1- All H.V. room & Transformer room should be provided with roof. The roof shall be water proofed. Sufficient slopes shall be provided (minimum 2 %), and proposals for diagonal roof slopes of (1% towards rainwater outlets).
- 2- 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
- 3- Aux. Supply DB should be approved by AADC and installed in the H.V room
- 4- For Substations with H.V. Panels, the batteries shall be sized considering both H.V. panels and DMS facilities
- 5- 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. It is preferred that Batteries are to be located in A separate room, the room shall be provided with proper exhaust fans, eye-wash etc .
- 6- The number of H.V cables is suitable for the trench dimension as per Al Ain Distribution Company specifications.
- 7- Cable Concrete Ducts should be provided to lay the cable from outside the Sub-station room.
- 8- A/C system has to get a separate power supply from source , the system are to be installed as per AADC specifications .
- 9- Earthing & Bonding of all equipment shall be done as per standards.

Approval from Project Delivery Division: Additional Comments

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APPROVED

APPROVED WITH COMMENTS

REJECTED

SIGNATURE

Civil Engineer

Department Manager

*In case your application has been rejected for the first time, 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

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APPROVED

APPROVED WITH COMMENTS

REJECTED*

SIGNATURE

Civil Engineer

Department Manager