



Loss Prevention
Protection as per QCDD
Requirements.

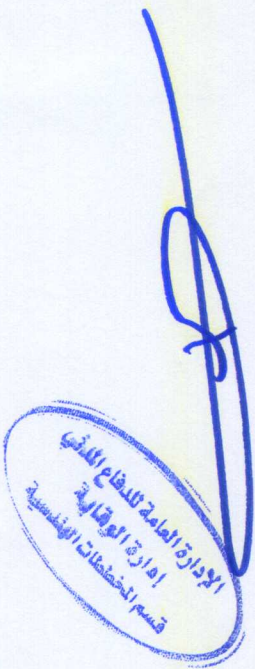
SUBSTATIONS – Electricity Distribution Networks

Loss Prevention System	
Distribution Network substations	Date: 07.04.2016

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Department: **Qatar Civil Defence - Loss Prevention Design Department.**

Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
1.	I – Public Distribution Substation				
1.1.	Indoor Distribution Substations	V.C.B - O.C.B + Tx: (Oil Type + Dry Type for future use) + F.P	Substation Building is Located in Open Area , it might be far away or attached with Neighbours subject to site condition	<ol style="list-style-type: none">1- MV Panel Room 2No's of FE (Clean Agent, 10LBS)2- Transformer Room 2No's of FE (Monix Dry Powder, 10 LBS)3- Exit & Safety Signs in Arabic + English Both Formats4- Fire Rated Doors 3hr.5- All penetrations will be sealed by Fire resistance material6- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall. – Note this point 6 is not applicable the area where cables are entering in substation by sand backfill & underground excavated.	





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Loss Prevention System

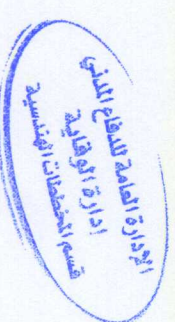
Distribution
Network
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Department: **Qatar Civil Defence - Loss Prevention Design Department.**

Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
1.2.	Outdoor Distribution Substations	Outdoor Switchgears (R.M.U (Oil or SF6) - F. Swt. - Tx. Swt.) + Tx. (Oil Type + Dry Type for future use) + F.P	Substation Building is Located in Open Area , it might be far away or attached with Neighbours subject to site condition	<ol style="list-style-type: none"> 1- MV Panel Room 2No's of FE (Clean Agent, 10LBS) 2- Transformer Room 2No's of FE (Monix Dry Powder, 10 LBS) 3- Exit & Safety Signs in Arabic + English Both Formats 4- Fire Rated Doors 3hr. 5- All penetrations will be sealed by Fire resistance material 6- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall. Note this point 6 is not applicable the area where cables are entering in substation by sand backfill & underground excavated. 	
1.3.	Package Substations	R.M.U (Oil or SF6) + Tx. (Oil Type) + F.S.F.P	No Civil Building (Steel Enclosure Only)	N/A	



SUBSTATIONS – Electricity Distribution Networks (Public & Consumers)



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Distribution Network substations

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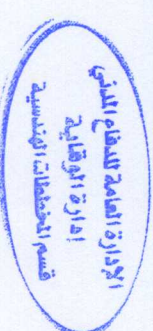
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Department: **Qatar Civil Defence - Loss Prevention Design Department.**

Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
1.4.	Switching Stations	Indoor Switchgears (V.C.B - O.C.B) or Outdoor Switchgears (R.M.U (Oil or SF6))	Substation Building is Located in Open Area , it might be far away or attached with neighbours subject to site condition	N/A	
1.5.	Remote Stations (G.M.T)	Ground Mounted Tx. (Oil Type + Dry Type for future use) + F.P	Substation Building is Located in Open Area , it might be far away or attached with neighbours subject to site condition	<ol style="list-style-type: none"> 1- MV Panel Room 1No's of FE (Clean Agent, 10LBS) 2- Transformer Room 1No's of FE (Monix Dry Powder, 10 LBS) 3- Exit & Safety Signs in Arabic + English Both Formats 4- Fire Rated Doors 3hr. 5- All penetrations will be sealed by Fire resistance material 6- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall. Note this point 6 is not applicable the area where cables are entering in substation by sand backfill & underground excavated. 	



SUBSTATIONS – Electricity Distribution Networks (Public & Consumers)





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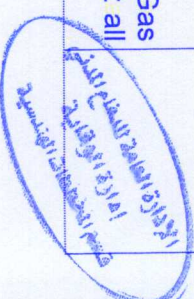
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Department: **Qatar Civil Defence - Loss Prevention Design Department.**

Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
1.6.	Remote Stations (P.M.T)	Pole Mounted Tx. (Oil Type) 200 KVa	No Civil Building (Only pole foundations)	N/A	
2. II - Consumer Distribution Substations					
2.1	Indoor Distribution Substations	V.C.B - O.C.B + Tx. (Oil Type - Dry Type) + F.P + M.V Panel	Substation Building can be Located outside consumer building or inside it (Ground Floor or Basement), subject to the project type	<ol style="list-style-type: none"> 1- A/G & U/G both MV Panel Room will be protected by FM200 System + 1No's FE (Clean Agent, 10LBS). 2- A/G Transformer Room 2No's of FE (Monix Dry Powder, 10 LBS). 3- U/G Transformer will be protected by FM200 System + 1No's FE (Monix Dry Powder, 10 LBS). 4- Exit & Safety Signs in Arabic + English Both Formats. 5- Fire Rated Doors 3hr. 6- All penetrations will be sealed by Fire resistance material 7- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall. 	



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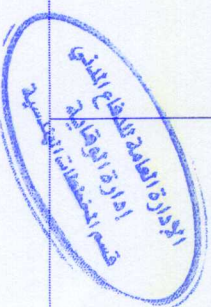
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Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
2.2	Outdoor Distribution Substations	Outdoor Switchgears (R.M.U (Oil or SF6) - F. Swt. - Tx. Swt.) + Tx. (Oil Type - Dry Type) + F.P + M.V Panel	Substation Building can be Located outside consumer building or inside it (Ground Floor) , subject to the project type	<ol style="list-style-type: none"> 1- A/G & U/G both MV Panel Room will be protected by FM200 System + 1No's FE (Clean Agent, 10LBS). 2- A/G Transformer Room 2No's of FE (Monix Dry Powder, 10 LBS) + Fire Alarm System. 3- U/G Transformer will be protected by FM200 System + 1No's FE (Monix Dry Powder, 10 LBS). 4- Exit & Safety Signs in Arabic + English Both Formats 5- Fire Rated Doors 3hr. 6- All penetrations will be sealed by Fire resistance material 7- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall. 	
2.3	Package Substations	R.M.U (Oil or SF6) + Tx. (Oil Type) + F.S.F.P	Substation (Steel Enclosure Only) to be Located outside consumer building , sometimes inside building (Ground Floor) in very limited cases where suitable height should be available (5~6)m	N/A	



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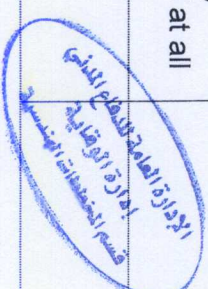
Serial No	Type of Substation	Equipment's	Type of structure / Civil Work	Loss Prevention Requirements	Remarks
2.4	Switching Stations	Indoor Switchgears (V.C.B - O.C.B) or Outdoor Switchgears (R.M.U (Oil or SF6))	Substation Building can be Located outside consumer building or inside it (Ground Floor) , subject to the project type	N/A	
2.5	Remote Stations (G.M.T)	Ground Mounted Tx. (Oil Type - Dry Type) + F.P + M.V Panel	Substation Building can be Located outside consumer building or inside it (Ground Floor or Basement or High Floor) , subject to the project type	1- A/G Transformer Room 2No's of FE (Monix Dry Powder, 10 LBS) + Fire Alarm System. 2- U/G Transformer will be protected by FM200 System + 1No's FE (Monix Dry Powder, 10 LBS). 3- Exit & Safety Signs in Arabic + English Both Formats 4- Fire Rated Doors 3hr. 5- All penetrations will be sealed by Fire resistance material 6- Mechanical Sleeves (Fire Rated, Gas sealed & Water Proof) to be provided at all cable entries and exits of wall.	
2.6	Remote Stations (P.M.T)	Pole Mounted Tx. (Oil Type) 200 Kva	No Civil Building (On Pole Only)	N/A	

الإدارة العامة للطوارئ
إدارة الوقاية
قسم المتطلبات الهندسية

Note:

- 1- TXs Capacity can be (500-800-1000-1250-1600) KVa.
- 2- DRY TYPE TRANSFORMERS: Inside , Basement & Beside Main Building and in Compounds , close to public and populated areas Dry Type Transformers to be installed.

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- 3- In consumer substation if Transformer is not part of main building & it's 15meter away from main building then only 2No's of FE (Monix Dry Powder, 10 LBS) and safety signs will be provided, For example Schools etc.
- 4- 3hr Fire Rate Doors will be installed in b/w two partitions according to KM HSE specs & QCDD requirements.
- 5- Fire Rated Doors will be provided in FM200 protected rooms according to KM HSE specs & QCDD requirements.
- 6- Fire curtains will be provided in FM200 protected rooms and these curtains will be interlocked with FM200 system.
- 7- Substation walls should be 3hr fire rated.
- 8- Further Details consultant/contractor shall coordinate with KAHRAMAA HSE and Layout of substation shall be sealed stamp by KAHRAMAA HSE before Qatar Civil Defence approval.
- 9- Substations Design specification of Fire Fighting and Fire Alarm Detection system shall be compliance to Qatar Civil Defence, KAHRAMAA HSE Deptt and NFPA.

Abbreviations:

A/G	Above Ground
U/G	Under Ground
B/W	Between
N/A	Not applicable
V.C.B	Vacuum Circuit Breaker
O.C.B	Oil Circuit Breaker
RMU	Ring Main Unit
F.Swt.	Feeder Switch
TX .Swlt.	Transformer Switch
TX	Transformer
FP	Feeder Pillar
FSFP	Free Standing Feeder Pillar
BOFP	Bolt On Feeder Pillar
MV	Medium Voltage

