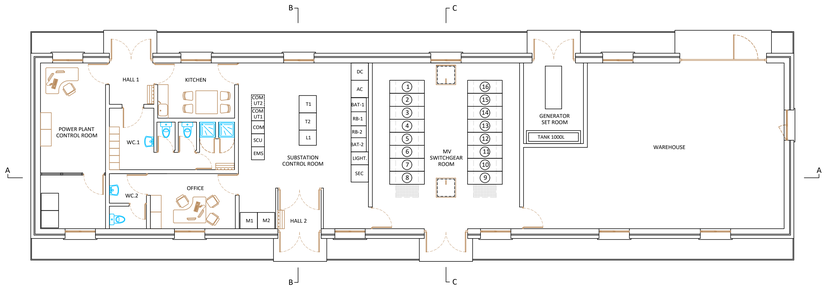


MV SWITCHGEAR ROOM CUBICLES	
BUSBAR 1	
1	CIRCUIT 1 POWER PLANT "A"
2	CIRCUIT 2 POWER PLANT "A"
3	CAPACITOR BANK PROTECTION
4	AUXILIARY SERVICES
5	TRANSFORMER MEASUREMENT
6	POWER TRANSFORMER PROTECTION
7	EQUIPPED RESERVE CUBICLE
COUPLING BETWEEN BUSBARS	
9	COUPLING
10	RISER
BUSBAR 2	
11	EQUIPPED RESERVE CUBICLE
12	POWER TRANSFORMER PROTECTION
13	MEASUREMENT
14	CAPACITOR BANK PROTECTION
15	AUXILIARY SERVICES TRANSFORMER
16	CIRCUIT 1 POWER PLANT "B"
17	CIRCUIT 2 POWER PLANT "B"

EQUIPMENT IN SUBSTATION CONTROL ROOM	
PROTECTION PANELS	
T1	TRANSFORMER 1
T2	TRANSFORMER 2
L1	LINE 1
INTEGRATED CONTROL SYSTEM PANELS	
COM UT1	COMMUNICATION PANEL FOR UTILITY
COM UT2	COMMUNICATION PANEL FOR UTILITY (RESERVE)
EMS	ENERGY MANAGEMENT SYSTEM (RTU)
SCU	SUBSTATION SCADA SYSTEM
COM	COMMUNICATION PANEL FOR EDPR
M1	MEASUREMENT 1
M2	MEASUREMENT 2
AUXILIARY SERVICES PANELS AND EQUIPMENTS	
RB-1	RECTIFIER 1
BAT-2	BATTERY CHARGER 1
RB-2	RECTIFIER 2
BAT-2	BATTERY CHARGER 2
A.C.	AUXILIARY SERVICES A.C.
D.C.	AUXILIARY SERVICES D.C.
SEC	SUBSTATION SECURITY SYSTEM
LIGTH	LIGTHING

CONTROL BUILDING AREAS			
	WIND FARMS	PV PLANTS	
NO. WTGs	WIND FARM CONTROL ROOM + KITCHEN + WCs	ZONE/ELEMENT	50-150 MWp / ≥150 MWp
5 - 20	40 m2	CONTROL ROOM	12 m2 / 12 m2
20 - 30	50 m2	KITCHEN	ALWAYS / ALWAYS
30 - 40	60 m2	WC	2 / 2
40 - 60	80 m2	SHOWERS	2 / 4
60 - 80	100 m2	LOCKERS	4 / 8
80 - 120	110 m2		
120 - 150	120 m2		
NO. WTGs	WAREHOUSE	PV POWER	WAREHOUSE (A4Ha = 0.95 x MWp – 1)
5 - 20	60 m2	5 MWp	10 m2
20 - 30	80 m2	10 MWp	15 m2
30 - 40	110 m2	25 MWp	29 m2
40 - 60	150 m2	50 MWp	48 m2
60 - 80	200 m2	75 MWp	76 m2
80 - 120	230 m2	100 MWp	100 m2
120 - 150	250 m2	150 MWp	148 m2

NOTES:

1. ABOVE DESIGN CORRESPOND TO A SUBSTATION WITH TWO WIND FARMS (2 WF) WITH 22-30 WTG IN TOTAL AND ONE LINE BAY (1L) + TWO TRAFO BAYS (2T).
2. DIMENSION OF THE POWER PLANT CONTROL ROOM AND WAREHOUSE WILL BE MODIFIED ACCORDING TO THE TABLE ATTACHED. FINAL DIMENSIONS OF THE POWER PLANT CONTROL ROOM AND EQUIPMENT WILL BE DEFINED FOR EACH PROJECT ACCORDING TO MANUFACTURER REQUIREMENTS..
3. MV SWITCHGEAR ROOM MUST BE ADAPTED TO THE NUMBER OF MV CUBICLES REQUIRED IN SUBSTATION UNDER DESIGN AND MV CUBICLE MANUFACTURER SPECIFICATIONS OF CUBICLE DIMENSIONS, WALL DISTANCES AND AISLE WIDTH. DEPENDING ON THE MV CUBICLE FINAL MODEL OR IN CASE OF LIMITED SPACE, ALTERNATIVE ARRANGEMENTS, SUCH AS SINGLE ROW OR WALL STANDING, CAN BE CONSIDERED WITH THE APPROVAL OF EDPR. DISTRIBUTION OF CUBICLES SHALL BE ACCORDING THE PROJECT SLDs. THERE SHALL BE A SPACE FOR ONE FUTURE CUBICLE IN EACH MV BUSBAR.
4. LAYOUT OF ROOMS CAN BE CHANGED TO ADAPT THE ACCESS AND GENERAL LAYOUT BUT PHILOSOPHY MUST BE KEPT UP:

   - WAREHOUSE MUST BE ACCESSIBLE FROM THE MV SWITCHGEAR OR SUBSTATION CONTROL ROOM. THE MAIN DOOR MUST BE PREPARED FOR VEHICLE ACCESS, INCLUDING FORKLIFTS AND PALLET TRUCKS. VEHICLES MUST ONLY REMAIN IN THE WAREHOUSE TO LOAD AND UNLOAD MATERIALS. PARKING IS NOT ALLOWED.

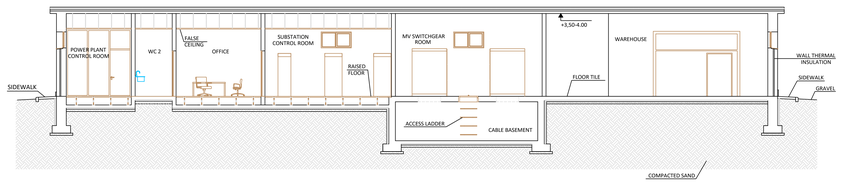
   - KITCHEN MUST BE ACCESSIBLE FROM POWER PLANT CONTROL ROOM AND SUBSTATION CONTROL ROOM.

   - IN NORMAL OPERATION, THE DOOR BETWEEN KITCHEN AND SUBSTATION CONTROL ROOM, WAREHOUSE AND MV SWITCHGEAR ROOM AND/OR WAREHOUSE AND SUBSTATION CONTROL ROOM MUST BE CLOSED AND THE KEY MUST BE UNDER THE CONTROL OF O&M EDPR.

   - THE ACCESS HATCH TO THE CABLE BASEMENT IN THE MV SWITCHGEAR ROOM WILL HAVE AN ANTI-CLOSING SYSTEM AND THE RISK OF FALLING AT A DIFFERENT LEVEL WILL BE SIGNPOSTED IN THE INSIDE OF THE HATCH'S DOOR.

   - POWER PLANT CONTROL ROOM, WAREHOUSE, AND GENERATOR SET ROOM SHALL NOT BE ACCESSIBLE FROM SUBSTATION SWITCHYARD, IN ORDER TO AVOID PRESENCE OF NON-AUTHORIZED PERSONNEL IN HIGH VOLTAGE AREAS.

   - HALL 2 IS REQUIRED FOR GEOGRAPHIES WITH HIGH PRESENCE OF SNOW. IT CAN BE ELIMINATED WITH THE APPROVAL OF EDPR.
5. THE GEN SET ROOM AREA MUST BE ADAPTED TO THE FINAL EQUIPMENT RESPECTING AT LEAST 1 M OF AISLE ON BOTH SIDES OF THE GENERATOR SET.
6. CONTROL BUILDING STRUCTURE MUST BE CALCULATED ACCORDING TO LEGISLATION AND ENVIRONMENTAL CONDITIONS OF THE AREA. THE LAYOUT OF WINDOWS CAN BE MODIFIED.
7. ALL THE SPACES SHALL COMPLY WITH THE LOCAL H&S REGULATIONS.
8. SEE SPECIFICATION TCSP-ELI_E&C-SBST-00054 "DESIGN AND CONSTRUCTION OF SUBSTATION CONTROL BUILDING" FOR MORE DETAILS.



CROSS SECTION A-A

NOTES:

1.- THIS IS AN INDICATIVE DRAWING. BUILDING MUST BE CALCULATED ACCORDING TO LOCAL AND INTERNATIONAL LEGISLATION.

2.- CABLE BASEMENT: MINIMUM HEIGHT MUST BE 1,7 M.

3.- THE SLOPE OF THE ROOF WILL DEPEND ON THE LOCATION OF THE BUILDING (CLIMATIC CONDITIONS). IF NEEDED, ROOF-MOUNTED SNOW FENCES MUST BE CONSIDERED.

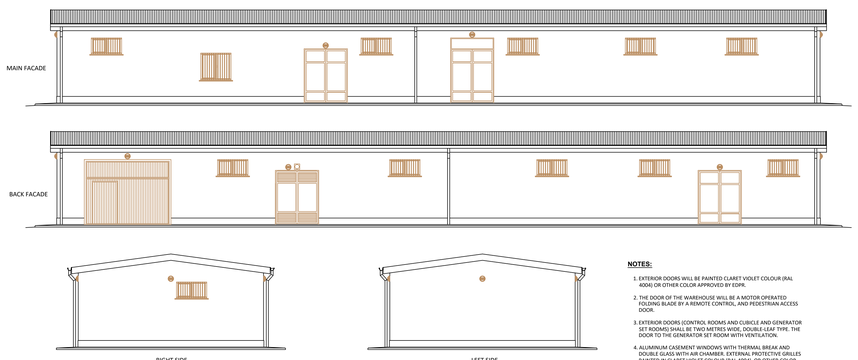
4.- FALSE CEILING SHALL BE INSTALLED IN THE FOLLOWING ROOMS: POWER PLANT CONTROL ROOM, SUBSTATION CONTROL ROOM, KITCHEN AND WCS.

5.- RAISED ACCESS FLOOR WILL BE INSTALLED IN THE CONTROL ROOMS, POWER PLANT AND SUBSTATION.

6.- CONCRETE FLOOR WITH EPOXY RESIN WILL BE INSTALLED IN MV SWITCHGEAR ROOM

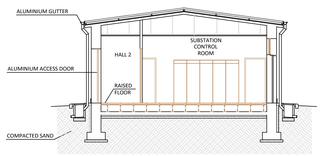
7.- ALL ACCESSES TO THE BUILDING FOR CABLES THROUGH THE STRUCTURE MUST BE PERFECTLY SEALED BY WATERTIGHT WALL BUSHINGS.

8.- SEE SPECIFICATION TCSP-ELI_E&C-SBST-00054 "DESIGN AND CONSTRUCTION OF SUBSTATION CONTROL BUILDING" FOR MORE DETAILS.

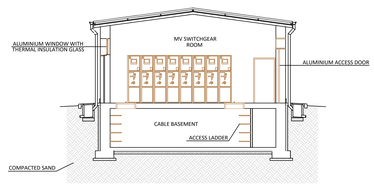


NOTES:

1. EXTERIOR DOORS WILL BE PAINTED CLARET VIOLET COLOUR (RAL 4004) OR OTHER COLOR APPROVED BY EDPR.
2. THE DOOR OF THE WAREHOUSE WILL BE A MOTOR OPERATED FOLDING BLADE BY A REMOTE CONTROL, AND PEDESTRIAN ACCESS DOOR.
3. EXTERIOR DOORS (CONTROL ROOMS AND CUBICLE AND GENERATOR SET ROOMS) SHALL BE TWO METRES WIDE, DOUBLE-LEAF TYPE. THE DOOR TO THE GENERATOR SET ROOM WITH VENTILATION.
4. ALUMINIUM CASEMENT WINDOWS WITH THERMAL BREAK AND DOUBLE GLASS WITH AIR CHAMBER. EXTERNAL PROTECTIVE GRILLES PAINTED IN CLARET VIOLET COLOUR (RAL 4004) OR OTHER COLOR APPROVED BY EDPR.
5. IN THE GENERATOR SET ROOM AND THOSE ROOMS WHERE COULD BE REQUIRED, PRIOR JUSTIFICATION, ALUMINIUM VENTS WITH A SURROUND AND FIXED WEATHERPROOF SLATS WILL BE INSTALLED.
6. THE EDPR OFFICE WINDOW SHALL BE POSITIONED AT EYE-LEVEL TO ALLOW VIEW OF THE HV SWITCHYARD.
7. SEE SPECIFICATION TCSP-ELI_E&C-SBST-00054 "DESIGN AND CONSTRUCTION OF SUBSTATION CONTROL BUILDING" FOR MORE DETAILS.



CROSS SECTION B-B



CROSS SECTION C-C

NOTES:

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2.- CABLE BASEMENT: MINIMUM HEIGHT MUST BE 1,7 M.

3.- THE SLOPE OF THE ROOF WILL DEPEND ON THE LOCATION OF THE BUILDING (CLIMATIC CONDITIONS). IF NEEDED, ROOF-MOUNTED SNOW FENCES MUST BE CONSIDERED.

4.- FALSE CEILING SHALL BE INSTALLED IN THE FOLLOWING ROOMS: POWER PLANT CONTROL ROOM, SUBSTATION CONTROL ROOM, KITCHEN AND WCS.

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6.- CONCRETE FLOOR WITH EPOXY RESIN WILL BE INSTALLED IN MV SWITCHGEAR ROOM

7.- ALL ACCESSES TO THE BUILDING FOR CABLES THROUGH THE STRUCTURE MUST BE PERFECTLY SEALED BY WATERTIGHT WALL BUSHINGS.

8.- SEE SPECIFICATION TCSP-ELI_E&C-SBST-00054 "DESIGN AND CONSTRUCTION OF SUBSTATION CONTROL BUILDING" FOR MORE DETAILS.

REGIONE SICILIANA
Libero Consorzio Comunale di Ragusa

COMUNE DI ACATE E VITTORIA

NOME PROGETTO
VICTORIA SOLAR FARM

TITOLO PROGETTO
PROGETTO PER LA REALIZZAZIONE E L'ESERCIZIO DI UN PARCO AGROVOLTAICO DA 190 MWP NEI COMUNI DI ACATE E VITTORIA E DELLE OPERE DI CONNESSIONE ALLA RETE DI TRASMISSIONE NAZIONALE

N. ELABORATO	N. REVISIONE	TITOLO ELABORATO
D57		Disegni tecnici sottostazione di elevazione

N. GENERALE	GRADO PROG.	AMBITO	TIPO ELAB.	SCALA	IDENTIFICATORE
127	PD	PRO	D	1:100	VSF127PROD57

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UNIVERSITÀ DEGLI STUDI DI PALERMO
SAAF

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