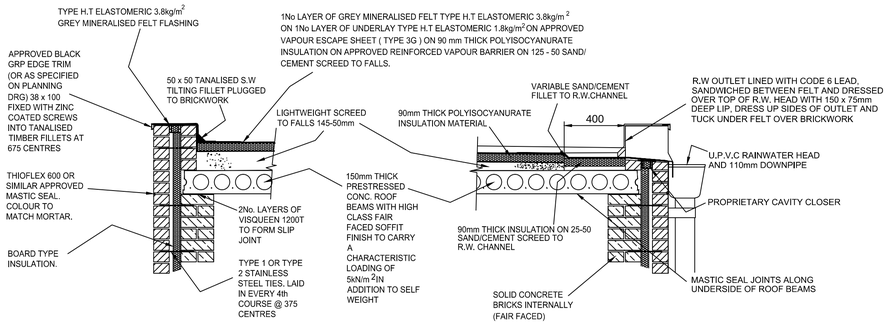
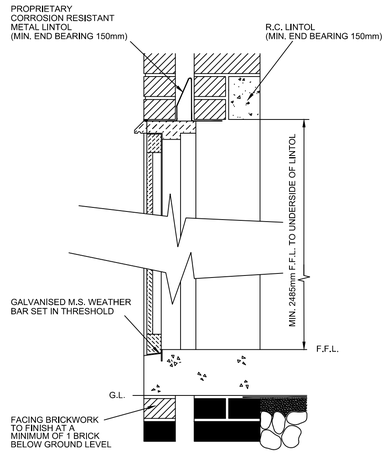


TYPICAL DETAIL AT HIGH POINT & END BEARING

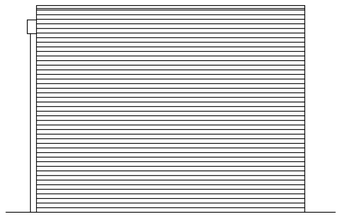
TYPICAL DETAIL AT ROOF OUTLET & SIDE BEARING

Scale 1:25

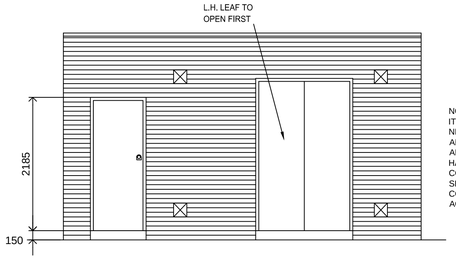


DOUBLE DOORWAY SECTION

Scale 1:10

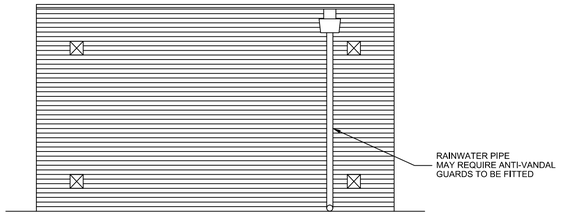


SIDE ELEVATION

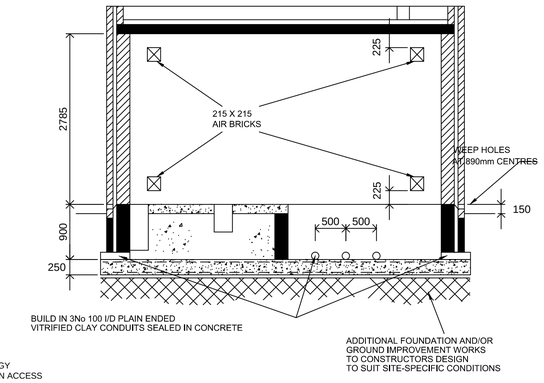


NOTE:
IT IS ESSENTIAL THAT ENERGY NETWORKS PERSONNEL CAN ACCESS AND PROPERLY SECURE ON EGRESS ALL DOORS AT ALL TIMES. ANY HARDWOOD, METALWORK OR GRP CONSTRUCTION DOORS THAT MAY SHRINK, WARP, WIND, DISTORT, CORRODE OR BIND WILL NOT BE ACCEPTABLE

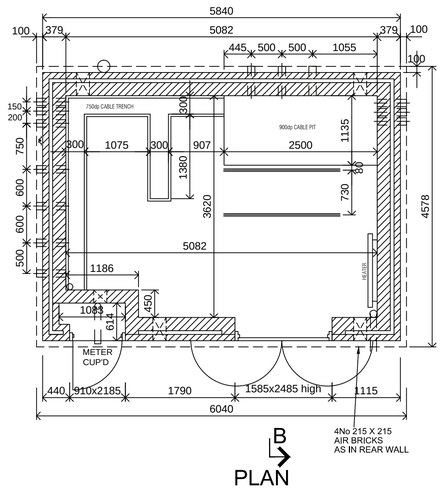
FRONT ELEVATION



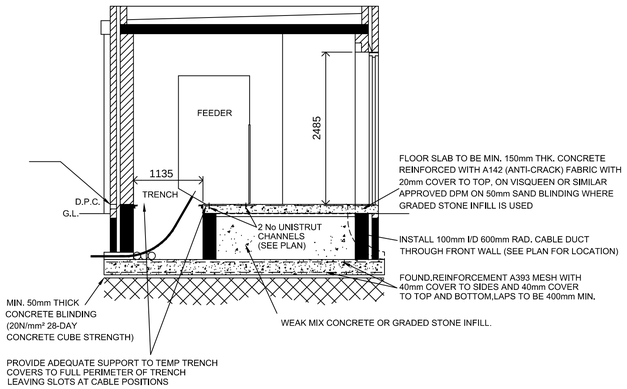
REAR ELEVATION



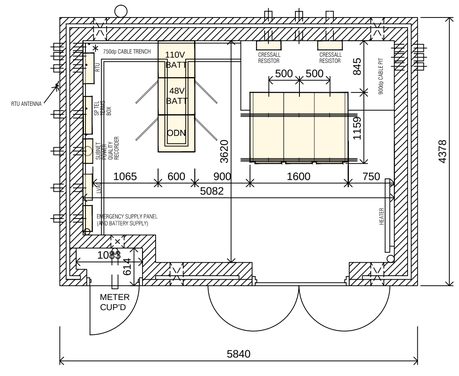
SECTION A-A



PLAN



SECTION B-B



PLAN OF PLANT

NOTES

General
This drawing is to be read in conjunction with document SUB-03-017 General Specification for the Civil Engineering and Building Design and Construction of Secondary Substations. It is the constructor's responsibility to confirm, before construction, that the details on this drawing are correct as per SUB-03-017.

This is a generic guidance drawing that is deemed suitable for construction. However the constructor should consider all site specific risk that will affect the design and operation of the substation. Proposed substation details are to be submitted for acceptance before installation.

Details shown on this drawing are typical for this type of substation building but may not be suitable for substations housing alternative equipment. The constructor shall satisfy themselves that the appropriate details shown are correct depending on the type of substation being constructed.

Concrete
General
The concrete shall be in accordance with the specification and attain the relevant cub crushing strength at 28 days.

Foundations (Concrete 40N/mm² 28-Day Cube Strength)
Foundations are to be set on undisturbed inorganic strata that provide the required minimum design safe ground bearing capacity. Minimum bearing capacity to be 75kN/m².

Floor (Concrete 40N/mm² 28-Day Cube Strength)
Floors of substations housing indoor switchgear shall have a visqueen damp proof membrane installed where graded stone infill is used.
A flat, level and smooth floor surface is essential for installation of plant. Tolerances to finished level expressed as a maximum permissible deviation beneath a straight edge with feet placed anywhere on the floor shall not exceed 1mm in 1m or 3mm in 3m. Floors to be cured, prepared & painted with 2 No. Coats of non-slip floor paint on completion.

Brickwork
General
All brickwork below D.P.C. to be H.D. category 1 min. 75N/mm² mean compressive strength and max 7% M.A. and durability designation F2 S2 (Ex Engineering Brickwork Class B) in English bond except for exposed faces.
External facing brickwork to be H.D. category 1 min. 30N/mm² mean compressive strength and max 12% M.A. and durability designation F1 S1 or better.
Internal facing brickwork to fair faced smooth textured solid concrete bricks, sized to match external facing bricks and with a mean compressive strength of not less than 20N/mm².
Class iii mortar.

Walls
External walls to enclosures housing Indoor Equipment shall be cavity construction that provides, as a minimum, standard thermal insulation values in accordance with the table below. The internal leaf shall be solid brickwork construction minimum 215mm overall thickness. Walls shall be fair-faced plumb and smooth to the interior.
Leaves of walls to be tied together by means of type 1 or type 2 stainless steel ties laid in every fourth course at 375mm centres and set back 38mm from outer face, ties are to be staggered.

Doors
Details of proposed doors shall be submitted to SPEN for comment, before work commences.
Proprietary GRP faced aluminium or steel security doors are the preferred option, unless stated otherwise.
An alternative option for hardwood doors (see Drg SP4000543 for details) or GRP doors is also available.

Cable Trench & Slots/Ramp
On completion of cabling, cable trench to be filled with dry sand and skimmed with minimum 50mm depth of sand/cement screed over a visqueen membrane (top to be level with FFL).

Roof
Roofs shall provide a minimum standard thermal insulation values as detailed in the table below.

Roof shall be proprietary precast pre-stressed beam and in situ concrete screed topping systems with a fair-faced soffit finish, sealed joints and with reinforcement to screed where applicable with water proofing as shown in the Typical Detail above.

Ventilation
Nominal trickle ventilation is to be provided to reduce the risk of condensation.

Insulation
Substations housing indoor switchgear require insulation. U values for wall and roof shall meet those detailed in the table below:

REGION	ROOF U (W/m²k)	WALLS U (W/m²k)
SCOTLAND	0.2	0.27
ENGLAND & WALES	0.25	0.35

Related Typical Deemed to Satisfy Drawings

Hardwood Doors	SP4000543
Meter Cupboards	SP4078901

Rev.	Date	
Drawn		
Checked		
Approved		

SP ENERGY NETWORKS
SP PowerSystems Ltd
System Design, Drawing Office
3 Prenton Way , Prenton , CH43 3ET
Telephone 0151 6092491

Title
Typical building detail for 11kV Generation Customer Substation 1MVA and above

Location
TYPICAL

Drawn	Date	Checked	Date	Approved	Date
dba	01.03.19	ad	01.03.19	ad	01.03.19

Status
FOR ISSUE

Drg. No.
SP4148718

Rev.

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Scale
1:50

Size
A1