

I-LINE II IEC Busway

Application Environment Definition

Editor: jianyuan-benji.huang@schneider-electric.com

Approval: Bruno.treremi@schneider-electric.com

Jim.ramsey@schneider-electric.com

Tom.song@schneider-electric.com

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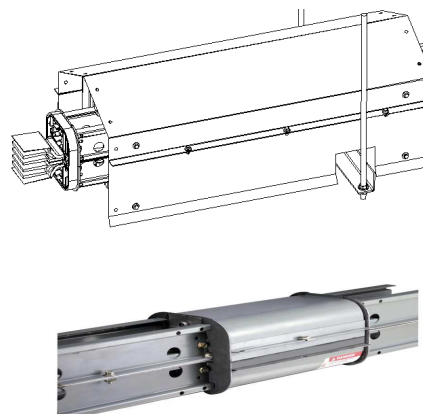
INDOOR

Up to IP65 busway



OUTDOOR

IP66 busway



Remark: IP66 Busway installation & maintenance procedure refer to I-LINE Busway Instruction **76521-030-01 clause 4.8 “OUTDOOR BUSWAY INSTALLATION”**

Outdoor busway recommended solution

Minimum 3 minutes water spray test (IPX5 & IPX6) from IEC 60529 doesn't mean the busway can withstand any complicated outdoor environment.

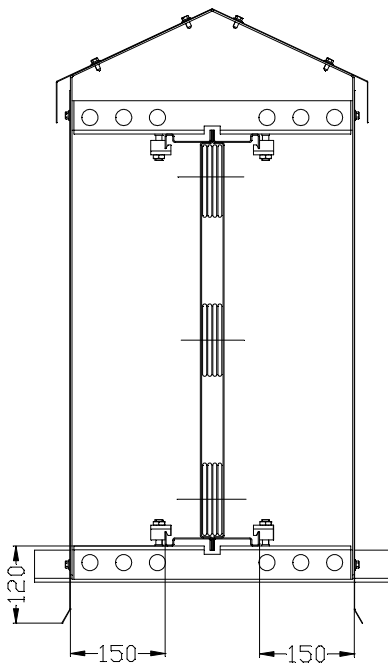
The canopy is recommended to be used to prevent sealing material deterioration from the direct sunshine and ultraviolet radiation and postpone sealing material aging caused by the alternate rain and sunshine effect. Canopy protection is necessary to ensure the expected long service life.

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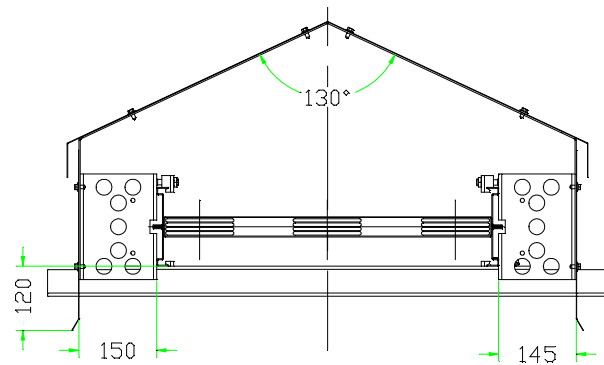
Guideline of canopy design:

- Protection from UV & heavy rain from all possible directions.
- Ventilation of canopy to prevent heat accumulation (de-rating Table 1 to be considered, structure design refer to Annex A)
- Material – aluminum or galvanized steel, or other **anti-corrosion** and **anti-UV material**.
- Thickness – minimum 1mm with Aluminum, or 0.8mm with Steel (to maintain the mechanical strength of structure).

Edgewise installation



Flatwise installation



Derating table with Outdoor application

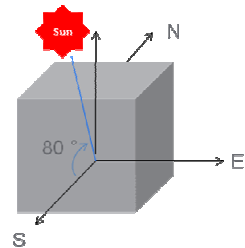
Additional protection of canopy will weaken the ventilation situation, busway de-rating factor need to be considered from thermal simulation (refer to Annex A):

Table 1: De-rating table for busway.

Type of installation (Edgewise)	I-LINE II IEC	Ambient temperature 24 hours average (°C)			
		35	40	45	50
Busbar trunking installed indoor	All	1	0.97	0.94	0.91
Busbar trunking installed outdoor under an aluminum/steel canopy	BFC 3200A	0.85	0.83	0.78	0.71
	BFC 4000A	0.87	0.84	0.79	0.73
	BFC 5000A	0.86	0.83	0.78	0.72

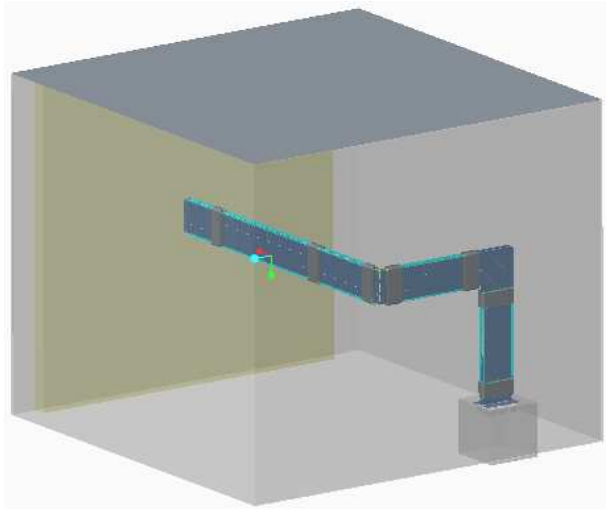
De-rating factors in Table 1 come from thermal simulation with setting parameters:

- 1. Solar flux and direction vector:**
 - Direction Solar irradiation 900W/m²
 - Diffuse Solar irradiation 100W/m²
 - Sun position 80°
- 2. Canopy material Radiation Data:**
 - Emissivity 0.87
 - Diffuse Absorptance 0.87
 - Solar Absorptance 0.97 (for black color)



Remark:

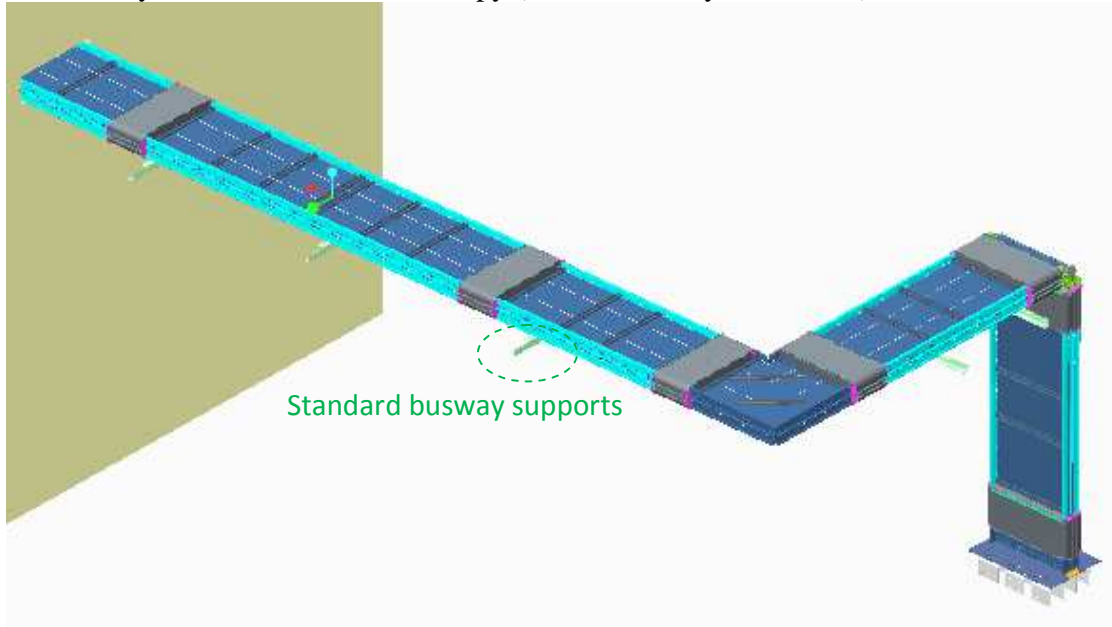
Apply the busway on site application situation similar to INDOOR application (such as uniform roof), IP65 INDOOR busway without additional derating can be considered.



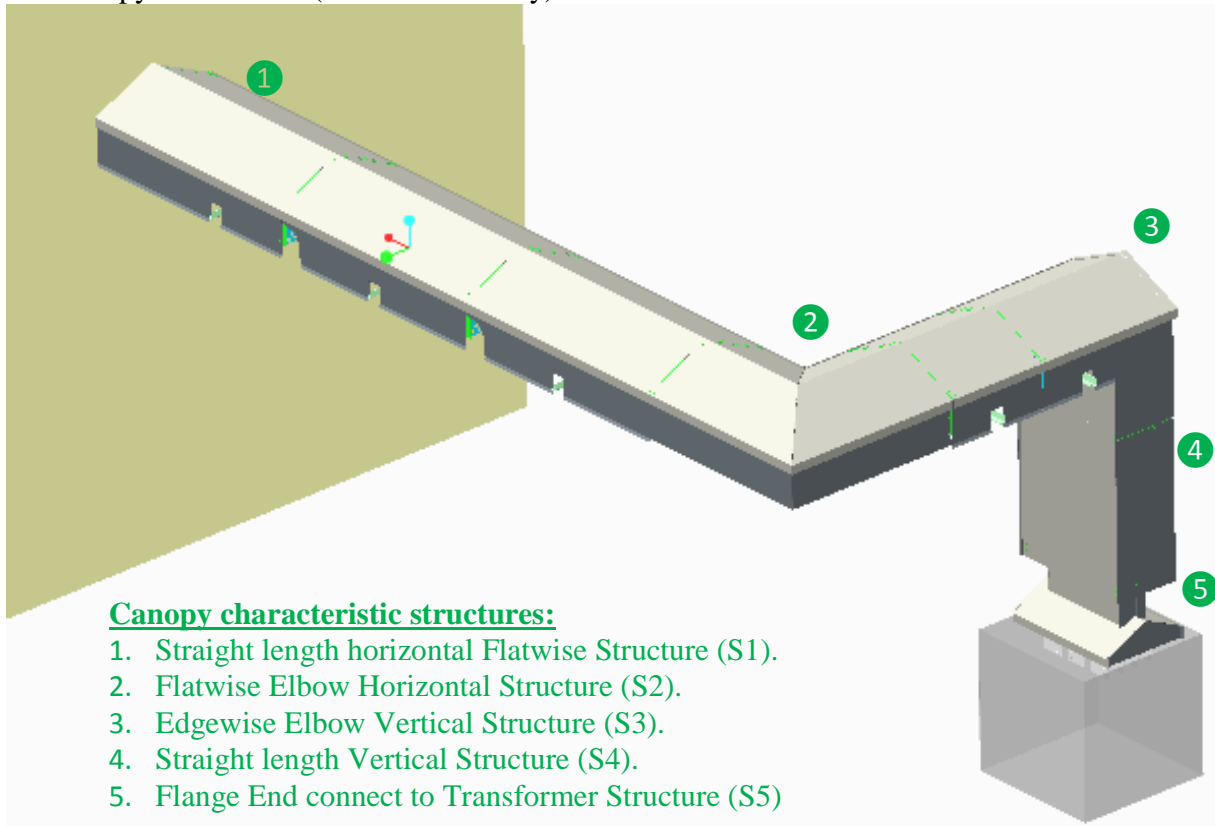
Annex A: Canopy Design instruction.

FLATWISE INSTALLATION:

1. Busway installation without Canopy (refer to busway instruction):

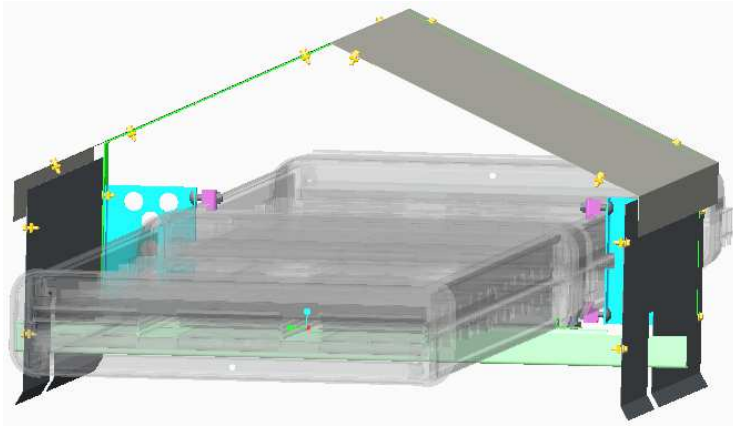


2. Canopy installation (fix on the busway):

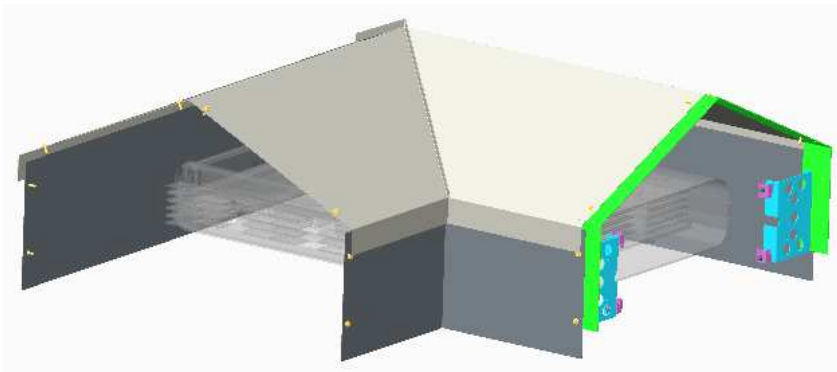


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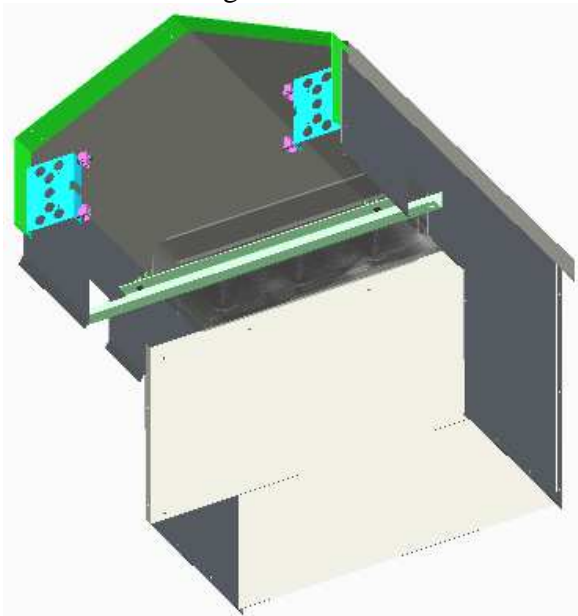
Structure S1: Straight length horizontal Flatwise



Structure S2: Flatwise Elbow Horizontal

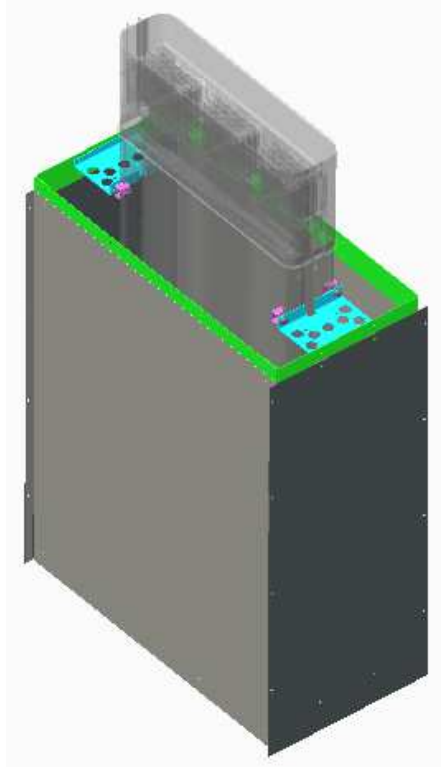


Structure S3: Edgewise Elbow Vertical

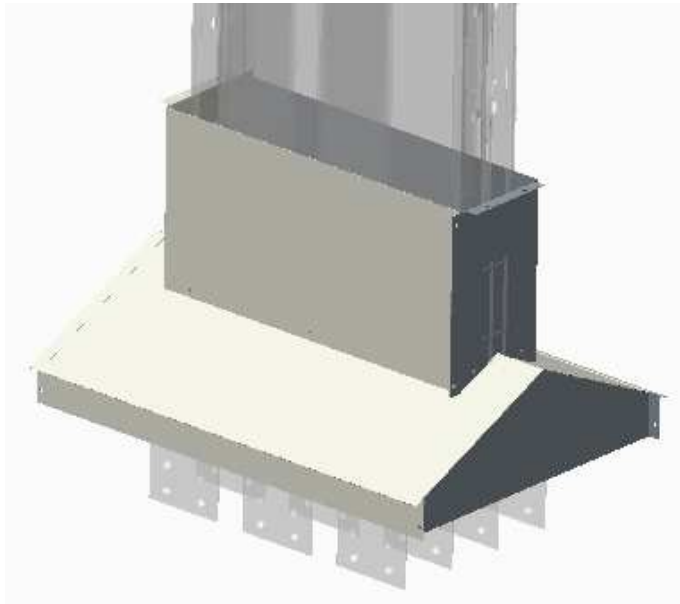


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Structure S4: Straight length Vertical



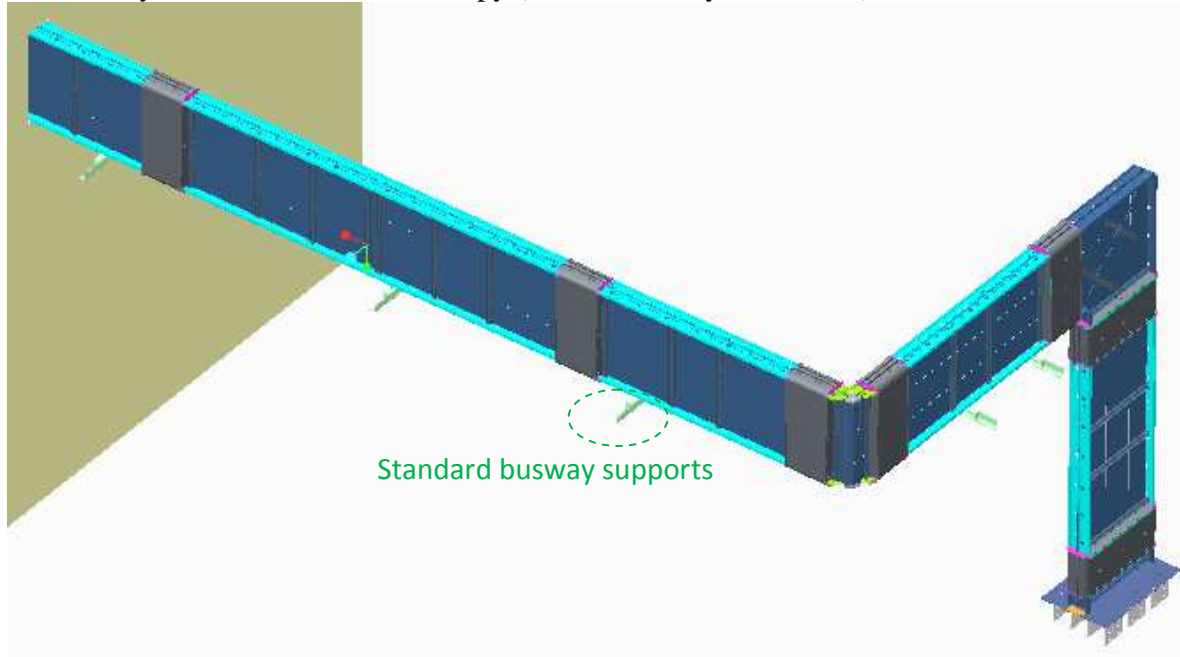
Structure S5: Flange End connect to Transformer



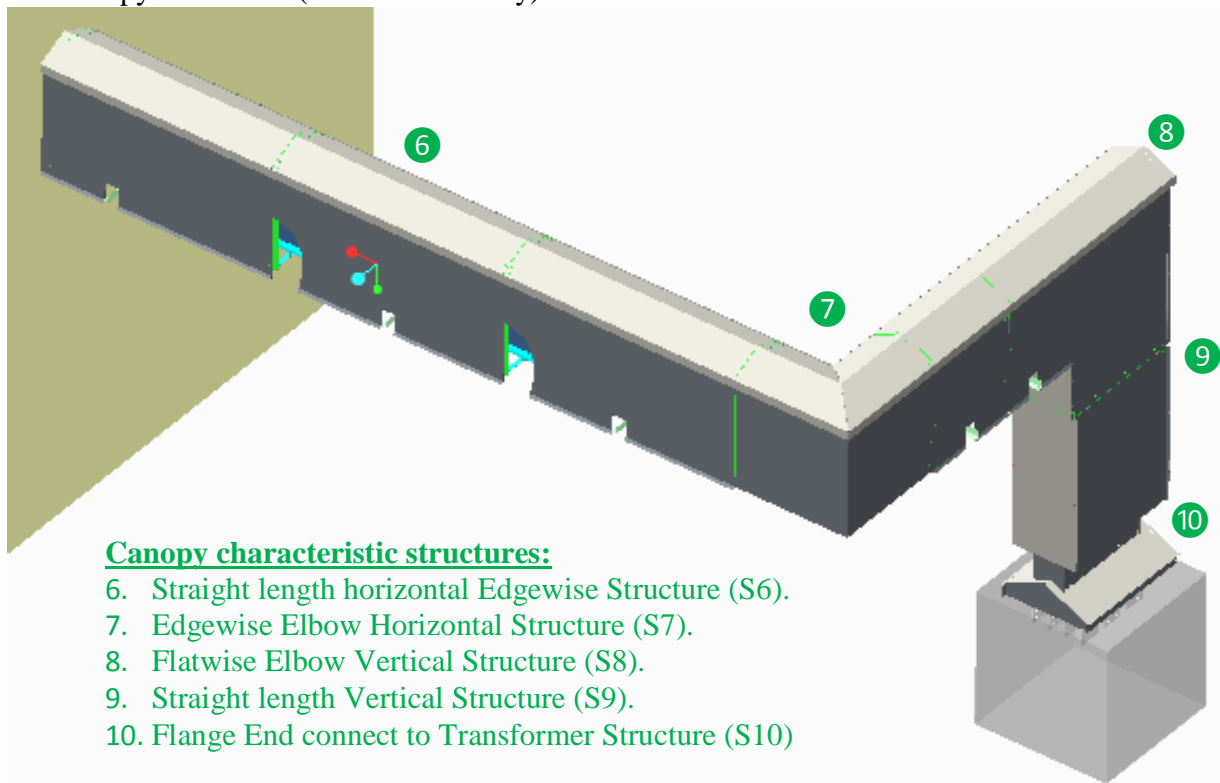
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EDGEWISE INSTALLATION:

1. Busway installation without Canopy (refer to busway instruction):

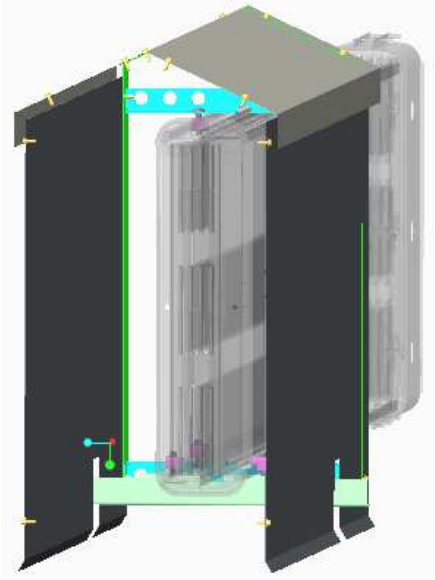


2. Canopy installatio (fix on the busway):

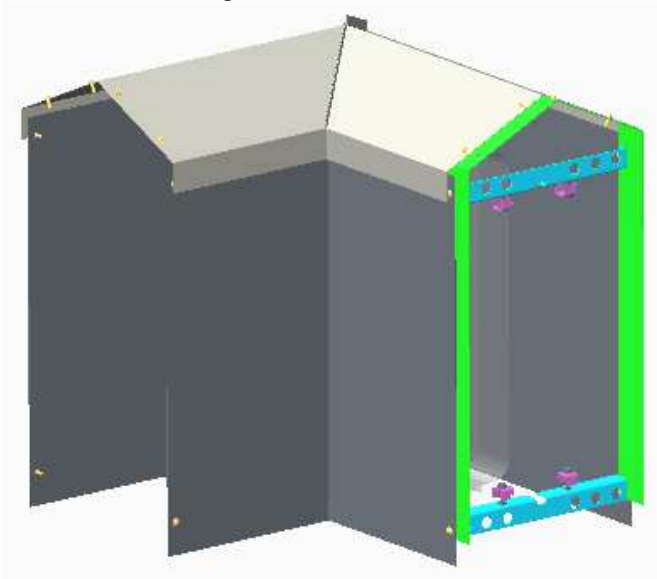


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Structure S6: Straight length horizontal Edgewise

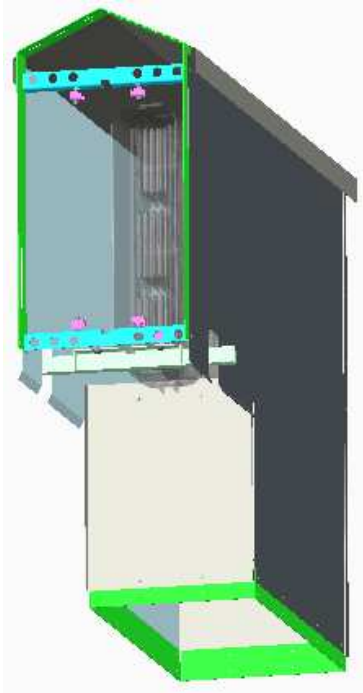


Structure S7: Edgewise Elbow Horizontal

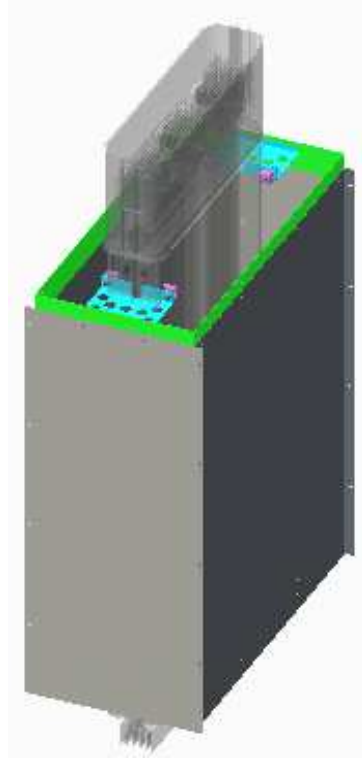


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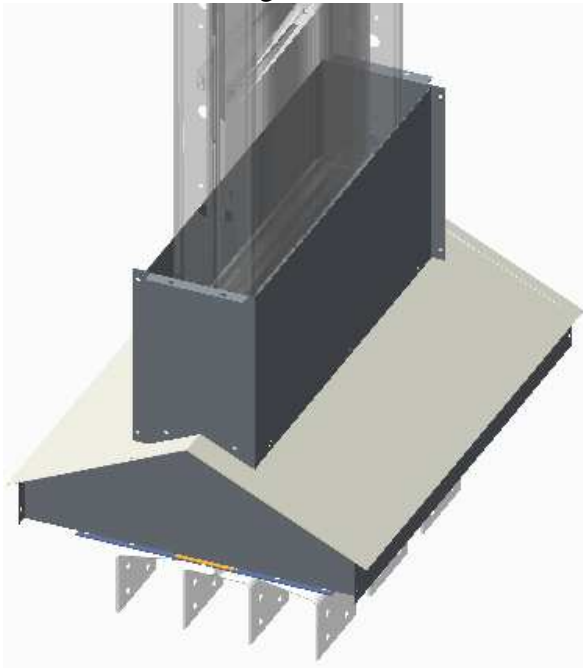
Structure S8: Flatwise Elbow Vertical



Structure S9: Straight length Vertical



Structure S10: Flange End connect to Transformer



- END -