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Fasteners – SASFA Code for low rise Light Steel Frame Buildings

Rob White
IZASA

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Key Issues addressed in initial code

Section 4 MATERIALS

- 4.3 Fasteners
  - Bolts, nuts and screws (self drilling and/or self tapping) according to SANS 1700
  - Steel rivets in accordance with the manufacturer's recommendations, supported by international standards or specifications
  - Clinching or other mechanical means of fastening as recommended by the manufacturer, supported by international standards or specifications
- Carbon steel fasteners shall be **coated with a zinc and/or inorganic coating** to provide **corrosion protection similar**, under the prevailing conditions, **to the metallic coated steel sheet used** for the light steel cold formed sections (e.g. coating designation Z200)

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Key Issues addressed (cont'd)

Section 5 STEEL STRUCTURE

–5.9 Connections

- 5.9.2 Design Criteria

–5.14 Durability and corrosion

Essentially specifies that **the corrosion protection of the steel shall be not less than equivalent to Z200** (or 100 g/m^2 or 14µm per side for buildings

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Fasteners technical sub-committee

Scope of activity:

• Define corrosion resistance to be required

Key Objectives:

•Simple practical and realistic recommendations

•Tabular output

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References used

- ISO 9223:1992 Corrosion of metals and alloys – Corrosivity of atmospheres – Classifications.
- SANS 1273: 200X. Fasteners for roof and wall coverings in the form of sheeting.
- AS 3566. Self-drilling screws for the building and construction industries Part 2: Corrosion resistance requirements
- SANS 253: 96 (≡ ISO 7253:96). Paints and varnishes – Determination of resistance to neutral salt spray (fog)
- ISO 11997 – 2: 2000(e). Paints and varnishes – Determination of resistance to cyclic corrosion conditions – Part 2: Wet (salt fog)/dry/humidity/UV light

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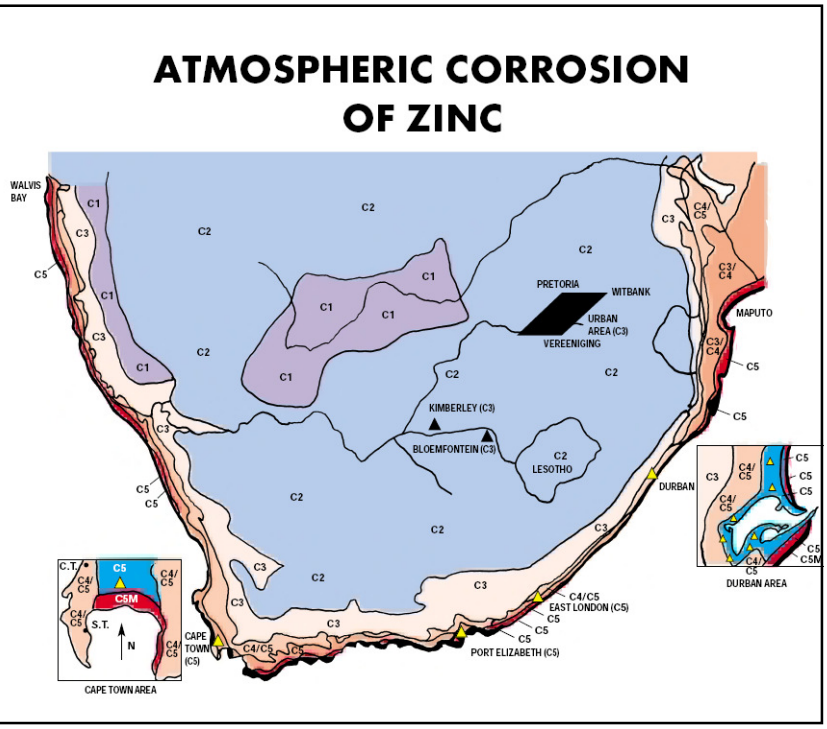

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Application	Location in building	Ease of access [1]	Atmosphere [2]	Coating class (min) [3,4]
1. Steel wall frames	Inside building envelope	Difficult	Inland	C2
		Difficult	Aggressive	C2
	Outside building envelope	Easy	Inland	C2
		Easy	Aggressive	C3
2. Trusses	Ventilated roof cavity	Difficult	Inland	C2
		Difficult	Aggressive	C3
	Unventilated roof cavity	Difficult	Inland	C2
		Difficult	Aggressive	C2
3. Wall frame anchors	Inside building envelope	Difficult	Inland	C2
		Difficult	Aggressive	C2
4. External cladding	Outside building envelope	Easy	Inland	C2
		Easy	Aggressive	C3
5. Internal lining, ceilings	'wet rooms'	Easy	Internal - regular condensation	C2
	all other rooms	Easy	Internal - dry	C1
6. Roofing	Outside building envelope	Easy	Inland	C2
		Easy	Aggressive	C3

1. **ease of access taken as practical consideration**
2. **Aggressive – marine (500m to 10km from sea) OR industrially polluted**
3. **Using the international ISO 9223 standard**

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Required testing

- Test samples shall be the driven screw
- For metallic coatings – salt spray testing required
- For organic coatings – 240 hours conditioning prior to salt spray – UVB 4 hrs 60 °C, condensation cycle – 50 °C
- C1 – 72 hrs, C2 – 240 hrs, C3 – 1000 hrs (to 5% red rust)