

SUPPLEMENTARY PAPER ON TECHNICAL GUIDANCE NOTE 7 (TGN 7) ADDRESSING UNPROTECTED STEEL STRUCTURE

1. Background

Unprotected steel structure issue has been discussed during the Technical Sub Committee (TSC) meeting where TSC guidance note has presented an alternative solution for existing unprotected steel structure built prior 24 November 2013. The RSC has developed an independent implementation guidance based on the outcome of the discussion, which may aid industry in completing their remediation plan in a timely manner.

2. Standard Requirement/s:

All buildings built from 24 November 2013 and prior to 11 February 2021 to meet the requirements of BNBC 2006. BNBC 2006 does not permit unprotected steel structure for factory buildings. Unprotected steel structures are permitted for existing buildings meeting certain criteria with the provision of sprinkler protection comply with the installation in accordance with NFPA 13.

3. Implementation Guidance:

A. Standard requirement

In line with RSC Technical Guidelines (Standard) existing buildings greater than 2 storeys with non-rated construction shall not exceed 2000 m² (22,000 ft²) per floor unless automatic sprinkler protection is provided throughout. All existing buildings with non-rated constructions shall follow the below table considering per floor area and building height.





Existing building (occupied prior to 24 November 2013)		
2 stories or less	Per floor area <22,000 ft ²	Per floor area >22,000 ft ²
	No requirement of sprinkler	No requirement of sprinkler
	No requirement of passive fire protection	No requirement of passive fire protection.
	Mixed occupancy separation according to BNBC 2006 Part 3 table 3.2.1. (Separation wall and floor/ ceiling assemblies)	
More than 2 stories up to building height 65 ft	No requirement of passive fire protection.	No requirement of passive fire protection.
	Active fire protection required- Standpipe system when building occupied level >33 ft.	Active fire protection required- sprinkler and standpipe system
	Mixed occupancy separation according to BNBC 2006 Part 3 table 3.2.1. (Separation wall and floor/ ceiling assemblies)	
building height more than 65 ft but less than 75 ft.	Passive fire protection required.	Passive fire protection required.
	Active fire protection required- Standpipe system	Active fire protection required- Sprinkler and standpipe system
	Mixed occupancy separation according to BNBC 2006 Part 3 table 3.2.1. (Separation wall and floor/ ceiling assemblies)	
Building height more than 75 ft	Passive fire protection required. Active fire protection required- sprinkler and standpipe system.	
	Mixed occupancy separation according to BNBC 2006 Part 3 table 3.2.1. (Separation wall and floor/ ceiling assemblies)	

B. Alternate solution

In lieu of providing sprinkler system to an existing unprotected steel buildings greater than 2 storeys with floor area more than 2000 m² shall meet the below requirement as an alternate solution agreed by the technical sub-committee.

- a. Unprotected steel frame with 1 hour column protection and floor slab deck with 30-minute fire resistance rating subject to Eurocode natural fire curves or ISO 834 fire.
- b. Building height not more than 3 stories (ground plus 2, maximum building height, 11 m).
- c. Building divided into fire compartments of not more than 2,000 m² in area by 1 hour rated fire resistant walls.
- d. Vertical shafts connecting more than 2 storeys require 2 hours fire rated construction.

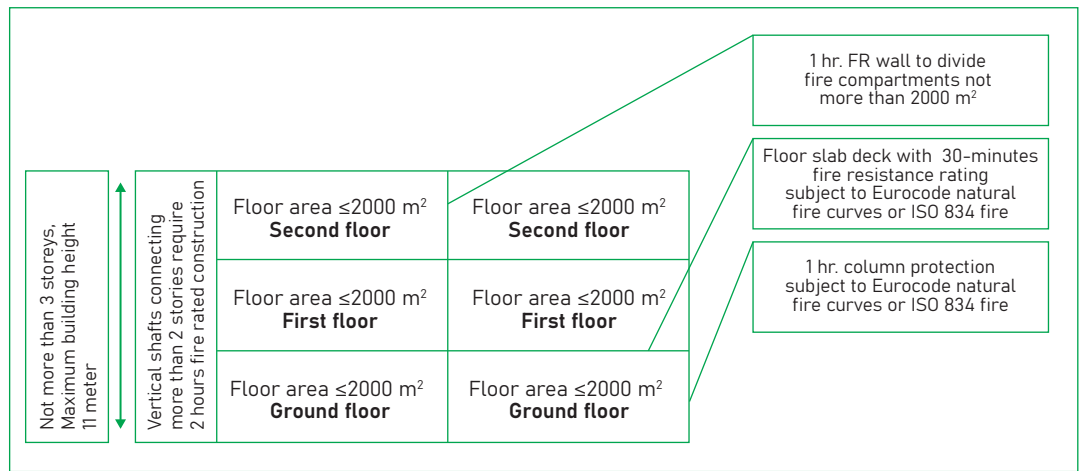


Figure: Building schematic diagram

4. Recommendation:

Section 3 within this supplementary paper provides detailed implementation guidance on both regulatory and alternate remediation options of existing unprotected steel structure, which will assist the user with adequate guidance and knowledge on completing the remediation with standard requirement accordingly.

5. References:

- BNBC 2006
- RSC Technical Guidelines (Standard)
- Accord building standard V1.1
- ISO 834 standard
- NFPA 13 Standard for the Installation of Sprinkler Systems
- Technical Guidance Notes for Fire and Building Safety Remediation in Bangladesh

Author: Md. Hassan Nawazis (Deputy Lead Engineer, Fire & Life Safety, RSC)
1st Reviewer: Md. Hasanuzzaman (Lead Engineer, Fire & Life Safety, RSC)
2nd Reviewer: Mohammad Ahsan Ullah (Acting Lead Engineer, Structural Safety, RSC)
Approved by : Iqbal M Hussain (Managing Director & Acting Chief Safety Officer, RSC)

