



LABS
Life And Building Safety

Alternate Remediation Solutions

Preface

The **LABS Methodology & Standards** are developed by qualified engineers, based on international best practices and codes such as NFPA, IBC and others, as well as experiences from Bangladesh. Also, in accordance with the **spirit and intent of the respective country standards**.

Under LABS, in addition to **applicable country laws**, factories commit to adhering to a **harmonized, country level standard around Structural, Fire, Electrical safety**.

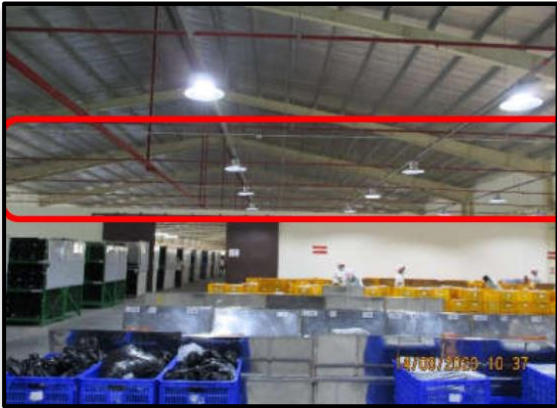
However, due to some **challenges faced** during the remediation action, such as **space constraints, structural challenges, unplanned initial construction, rented premises, financial difficulties, etc.** some factories are unable to proceed with Remedial activities and in such cases, **LABS team assists** the factories with alternate remediation options **in consultation with the Inspection firm** assessors, which still falls under the purview of the Safety standards.

This document captures examples of such **Alternate solutions** provided to factories on a case-to-case basis.

Note: While the alternate solutions provided in the document are in line with the National/International standards, it is important to understand that wherever feasible, the primary remediation will only be preferred.

Issue/Description: Incomplete separations of different occupancies

Original issue image



CAP: Provide 1-hour fire rated partition wall with 45-minute self-closing fire rated doors between occupant areas

Applicable standards: Cl. 3.10 and Cl. 3.11 of the Labs Standard and LABS Methodology 5.3.2.3.

Remediation Image



Primary Solution: Separate storage areas from adjacent areas by means of 1-hour fire rated construction (including the fire rated wall and fire rated doors)

Design approval required: Yes

Alternate remediation image



Alternate Solution 1: Separate storage areas from adjacent areas by Drencher system (water curtain). The design of the water supply system is needed (including pump capacity, water storage, etc.)

Design approval required: Yes

Issue/Description: Incomplete separations of different occupancies

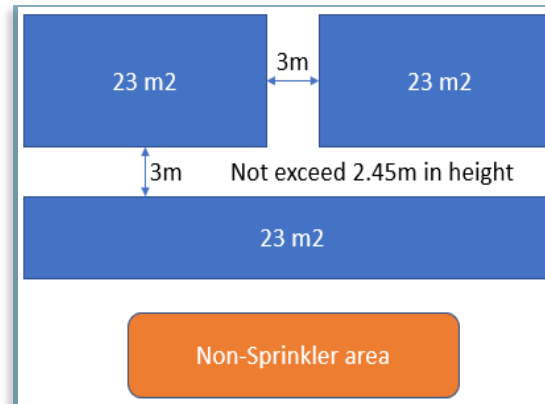
Original issue image



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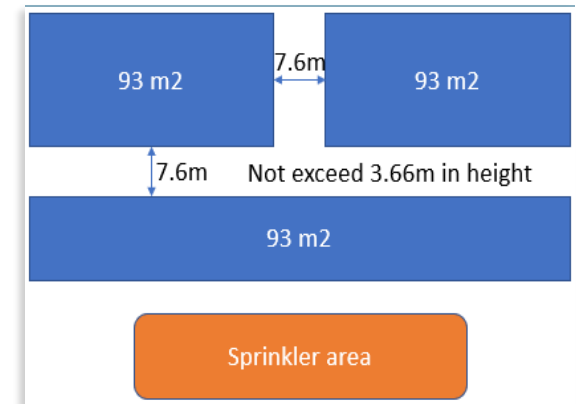
Remediation Image



Alternate Solution 2: To restrict the spread of fire, the in-process temporary storage (<25% floor area) should be arranged in order to compliance with LABS standard (**Apply for Non-sprinkler area**)

Design approval required: No

Alternate remediation image



Alternate Solution 3: To restrict the spread of fire, the in-process temporary storage (<25% floor area) should be arranged in order to compliance with LABS standard (**Apply for Sprinkler area**)

Design approval required: No

Issue/Description: Unless in-rack automatic sprinklers have been designed and installed, solid shelf racking shall not be used

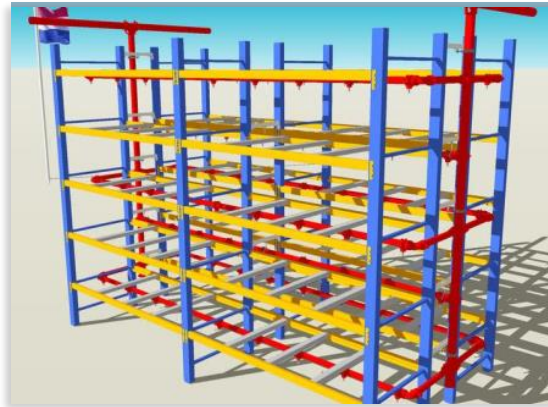
Original issue image



CAP: Unless in-rack automatic sprinklers have been designed and installed, solid shelf racking shall not be used. A minimum of 50% openings in shelving material shall be considered open shelves.

Applicable standards: LABS standard CI 5.3.8.2

Remediation Image



Primary Solution: In-rack automatic sprinklers installed

Design approval required: Yes

Alternate remediation image



Alternate Solution 1: Open Rack with more than 50% opening holes

Design approval required: Yes

Issue/Description: Unless in-rack automatic sprinklers have been designed and installed, solid shelf racking shall not be used

Original issue image



CAP: Unless in-rack automatic sprinklers have been designed and installed, solid shelf racking shall not be used. A minimum of 50% openings in shelving material shall be considered open shelves.

Applicable standards: LABS standard CL 5.3.8.2

Remediation Image



Alternate Solution 2: Separated the solid shelves to the single solid panels with areas less than 1.9m² and maintain the flue space 150mm.

Design approval required: Yes

Alternate remediation image



Alternate Solution 3: Maintain the transverse flues 150mm at maximum 1.5m interval

Design approval required: Yes

Issue/Description: The sprinklers were installed far below the ceiling (>300mm)

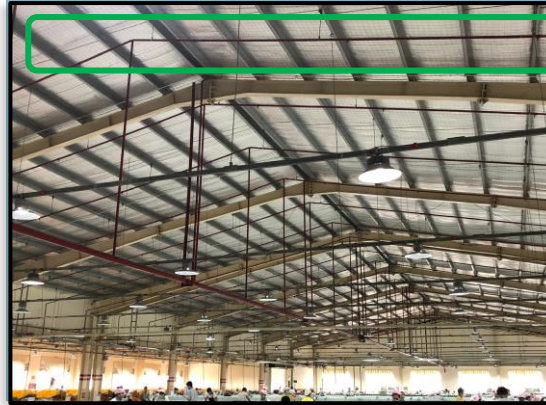
Original issue image



CAP: The distance between the sprinkler deflector and the ceiling shall be a minimum of 1 in. (25 mm) and a maximum of 12 in. (300 mm) throughout the area of coverage of the sprinkler.

Applicable standards: According to NFPA13 CL8.6.4, TCVN 7336-2003 CI 6.6

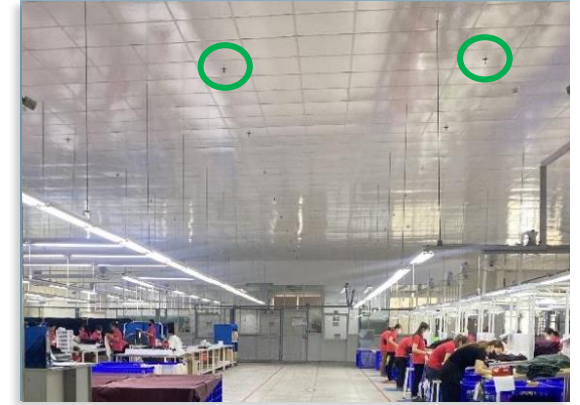
Remediation Image



Primary Solution: The sprinkler heads have been moved close to the roof (<300mm).

Design approval required: Yes

Alternate remediation image

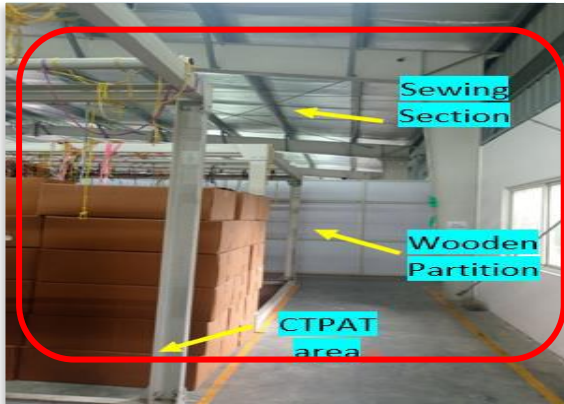


Alternate Solution: The pendant ceiling has been installed to cover the sprinkler area.

Design approval required: Yes

Issue/Description: Fire rated separation between multiple occupancies

Original issue image



CAP: Fire rated compartmentation to be provided between 2 different occupancies to avoid the spread of fire from one area to the other

Applicable standards: According to LABS Cl. 3.14.

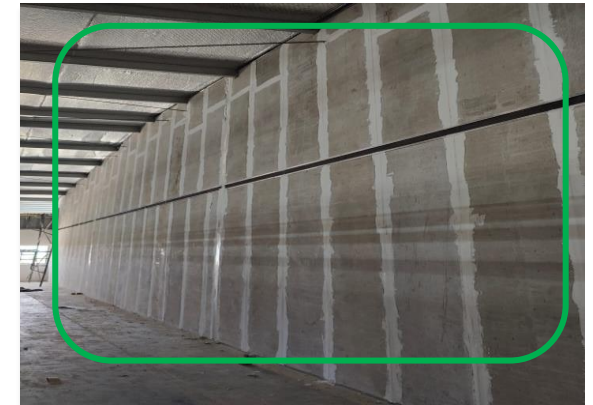
Remediation Image



Primary Solution: Construction of Fire rated separation with brick and mortar to enable a 2-hour fire rated protection

Design approval required: Yes

Alternate remediation image



Alternate Solution: Where maintaining structural load to under lying floors is a challenge, Fire rated enclosure provided using Aerocon panels instead of civil wall structure.

Design approval required: Yes

Issue/Description: In-adequate water storage for fire-fighting

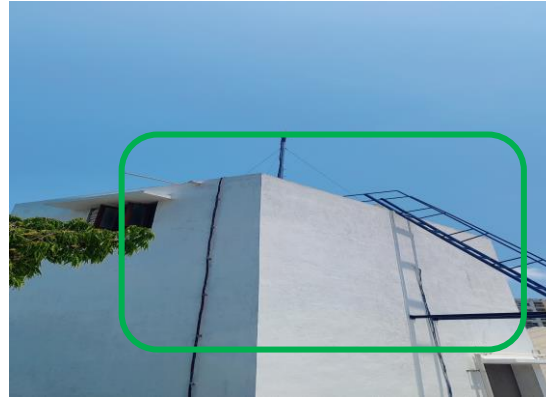
Original issue image



CAP: Inadequate fire water tank of only 50,000 litre underground with negative suction for firefighting.

Applicable standards: According to LABS Cl. 5.8

Remediation Image



Primary Solution: Provide fire water tank with additional 100,000 litre capacity for firefighting purposes during emergencies.

Design approval required: Yes

Alternate remediation image



Alternate Solution: Modular fire water tank provided instead of underground civil structured water tank where there is no space constraints along with positive suction for delivery header.

Design approval required: Yes

Issue/Description: Fire rated separation to be provided for lift lobby

Original issue image



CAP: Lack of fire rated enclosure for lift lobby connecting more than two floors.

Applicable standards: According to LABS Cl. 4.8

Remediation Image



Primary Solution: Provide fire rated enclosure for lift lobby by installing 120 min fire rated door and along with civil wall structure for lobby enclosure.

Design approval required: Yes

Alternate remediation image



Alternate Solution: Provide fire curtain for lift lobby along with integration of curtain with fire alarm system where there is a space constraint to construct a fire rated wall.

Design approval required: Yes

Issue/Description: Lack of column bracing of the steel building

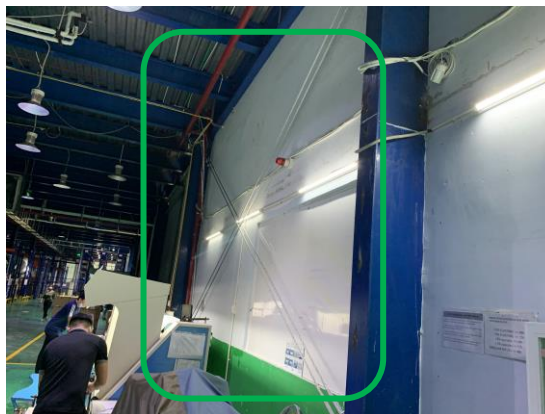
Original issue image



CAP: Missing column bracings were observed for buildings.

Applicable standards: Refer to Clause 8.5 and 8.18 of the LABS Standard

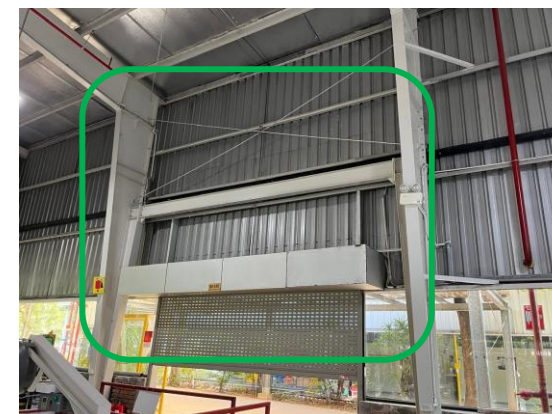
Remediation Image



Primary Solution: Provide the X column bracing as design.

Design approval required: Yes

Alternate remediation image

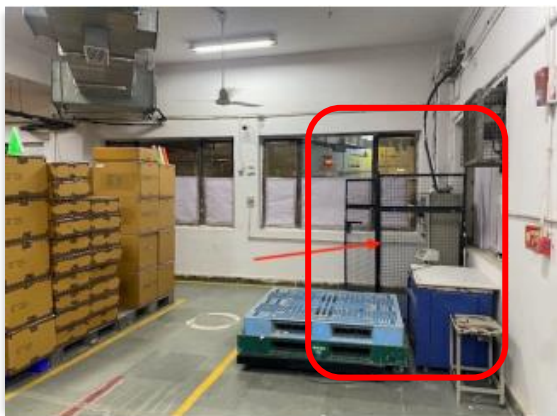


Alternate Solution: Provide the frame bracing where the door located

Design approval required: Yes

Issue/Description: Fire suppression system for electrical panels in operational/escape path areas.

Original issue image



CAP: Electrical panels and other installations were found in the exit staircases in the factory.

Applicable standards: According to LABS Cl. 6.14.4

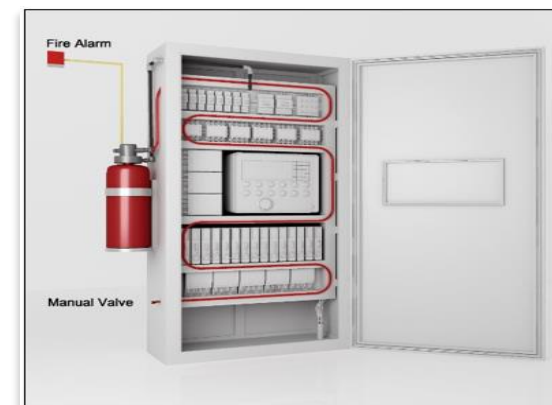
Remediation Image



Primary Solution: Separate the electrical panels and installation by providing fire rated enclosure of 120 min fire rated door and along with civil wall structure for lobby enclosure.

Design approval req'd: Yes

Alternate remediation image



Alternate Solution: Provide fire suppression system for electrical panels and installation in production and escape path areas along with integration to fire alarm system.

Design approval req'd: Yes

LABS Data Repository

1. [LABS Toolkit](#)
2. [Good practice session presentations](#)
3. [Mainstreaming Gender Equality In Safety Procedure](#)
4. [LABS remediation action flow – CAP Sign-off, Design approval and CAP Closure](#)
5. [LABS Standards and Methodology](#)

Note: For more information, contact LABS in-country team.