

# INITIAL FIRE SAFETY INSPECTION REPORT

**Factory name: Rupa Fabrics Limited (Extension)**

**RSC ID: 24619**

**Factory Address: Kunia, Board Bazar, National University, Gazipur.**

**GPS: 23.93712, 90.38677**

**Other Factories: Rupa Knit Wear Pvt. (RSC ID: 11708) & Rupa Fabrics Limited (RSC ID: 11757).**



**Inspected By: Md. Kamrul Hasan & Md. Jahidul Kabir**

**Date: 28 Nov 2023**

# Fire Safety Inspection Report

## Introduction:

**Rupa Fabrics Limited (Extension)** complex was surveyed for fire safety on **28/11/2023** by The RSC Inspection Team. The purpose of the survey was to identify significant fire safety issues and to provide recommendations for remediation based on applicable standards specified by the RSC. The scope of this initial fire safety inspection was limited to the review and identification of major fire safety issues. The inspection did not include identification of minor deficiencies, which will be further addressed as part of follow-up inspections.

## Limitations

The information in this fire safety inspection report was obtained during a visit to the facility and during interviews with local factory management. It has not been possible to provide independent verification for all the information and data collected, and, therefore, The RSC cannot accept general responsibility for omissions or errors arising from inaccuracies in this report from the information obtained.

The findings and recommendations in this report are not intended to imply, guarantee, ensure or warrant compliance with any government regulations. Additionally, the results do not imply in any way that compliance with the findings or recommendations as stated in this report will eliminate all hazards, risks or exposures or that hazards, risks or exposures not referred to in this report do not exist. Compliance with the findings and recommendations stated in this report does not relieve the factory owner from obligation to comply with specific project requirements, industry standards, or the provisions of any local government regulations.

## General Factory Information

Factory Building name(s):	1. Seven Storied Building (B+G+6), 2. Utility Building-2 (G+2), 3. Dyeing Shed-2 (G), 4. Dyeing Finishing Shed-3 (G).	(Construction duration: Apr 2017 - Nov 2019; Floor Occupied: 2022) (Construction duration: Jul 2016 - Dec 2018; Floor Occupied: 2018) (Construction duration: Jan- 2017, Aug-2019; Floor Occupied: 2019) (Construction duration: Feb - 2018, Mar -2020; Floor Occupied: 2020)
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## Additional Information:

### Other structures:

**1. Utility Building-2 (G+2) (10494.8 sft):** Highest Occupiable Floor level Height: 47 ft.; RCC; (Construction duration: Jul 2016 - Dec 2018; Floors Occupied: 2018)

Ground Floor: Generator room.

1st Floor: EGB Boiler room.

2nd Floor: Compressor room.

**2. Dyeing Shed-2 (G) (7491.68 sft):** Height of the structure: 8.5 meter; Steel Structure; (Construction duration: Jan- 2017, Aug-2019; Floor Occupied: 2019);

Ground Floor: Dyeing section.

**3. Dyeing Finishing Shed-3 (G) (23196.23 sft):** Height of the structure: 8.5 meter; Steel Structure; (Construction duration: Feb - 2018, Mar -2020; Floor Occupied: 2020)




Ground Floor: Dyeing finishing section.



**\*\*\* Dyeing Shed-2 and Dyeing Finishing Shed-3 is attached with the ground floor of the 7 storied building where a single fire event is considered.**

## Findings & Recommendations :

Table 1 summarizes the major fire safety issues identified during the inspection. Recommendations have been provided to address each issue. An implementation schedule shall be developed by the factory to remediate each of the findings. The specific timing of improvements, including any requested extensions due to design / installation constraints, shall be submitted to the RSC for review.



Table-1:

SI No.	Category	Findings	Required Action	Remediation Time Frame
1	Fire Rated Construction	<p>The exit stairs are not separated from work areas, other spaces on each floor by fire-rated construction due to the following reasons:</p> <ul style="list-style-type: none"> <li>i. Fire doors were not functional properly.</li> <li>ii. Unprotected opening was found due to toilet,</li> <li>iii. Shoe racks at the stairs.</li> </ul> <p>(7 Storied Building)</p>	<p>Provide minimum 1-hr rated doors for buildings with 3 or fewer stories and 1.5-hr fire rated doors for buildings that are 4 or more stories. Seal all unprotected openings to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing and positive latching and that they are provided with fire exit (panic) hardware where serving production floors. If fire doors are required to be held open for functional reasons, provide automatic closing devices tied to the fire alarm system. Once fire doors are installed, every door in a stair enclosure serving more than 5 stories shall be provided with re-entry unless it meets.</p>	Within 3 months
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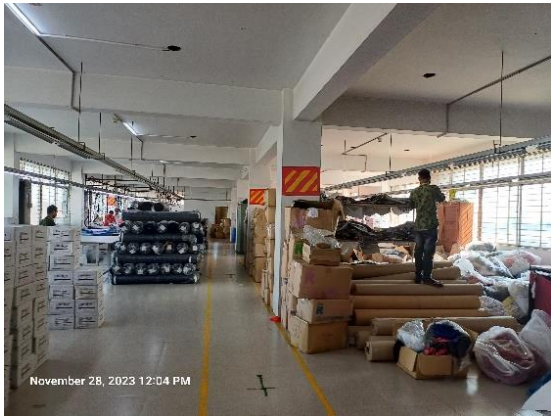
2	Fire Rated Construction	<p>The main structural elements of the building are constructed by steel which is non-rated and were found in exposed condition without any fire protection. (Interim Structure).</p> <p>(Dyeing Shed-2 &amp; Dyeing Finishing Shed-3)</p>	<p>The building is interim steel structure which shall be type-I construction. So, provide require rating in the structural elements of the buildings. Consult with a qualified fire protection engineer. Follow BNBC 2006-Table 3.2.4, 3.1.9 and 3.3.1 as reference.</p>	<p>Design Review within 2 month and installation within 4 months (If require).</p>
				

3	Fire Rated Construction	<p>Storage rooms, generator room, boiler room, basement floor and compressor room discharges directly into exit stair enclosure.</p> <p>(7 Storied Building &amp; Utility Building-2)</p>	<p>Openings from exit enclosures to storage areas, basements, transformer rooms, generator rooms, boiler rooms, and similar normally unoccupied spaces shall be provided with vestibules with fire rated construction and openings. Provide a 1.5 hr. fire rated door on the exit stair side and a 1-hr. fire rated door on the Store, generator, basement, boiler room, compressor room side. Ensure that the fire rating of the vestibule construction matches that of the exit stair enclosure.</p>	Within 3 months
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4	Fire Rated Construction	<p>Unsealed penetrations and openings are located in the fire-rated floor/ceiling assemblies.</p> <p>(Cable riser &amp; sanitary line in 7 Storied Building)</p>	<p>Provide a minimum 2-hr fire rated shaft to separate the utility risers from each floor level or seal all penetrations and openings in floors/ceiling assemblies by 3-hr fire rated listed/certified materials. The installation of such fire rated materials shall be following certified design.</p>	Within 3 months
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5	Fire Rated Construction	<p>Storage areas were found on the ground, 3rd &amp; 6th floor not maintaining as per standard; and on the 1st floor storage area found not separated.</p> <p>(7 Storied Building)</p>	<p>Separate the dedicated storage rooms by minimum 1-hr fire-rated construction. Provide 0.75 hr. fire rated door and seal all penetrations and openings by 0.75 hr. (45 Minutes) fire rated fire rated barrier construction. Where separate storage rooms are not feasible, provide defined storage areas and limit the storage arrangement as follows:</p> <ul style="list-style-type: none"> <li>- Maximum height of 2.45m (8ft.) , maximum area of 23m<sup>2</sup> (250 ft<sup>2</sup>) and 3m (10ft.) clear distance from adjacent another unenclosed combustible storage.</li> <li>- If the building/floor is sprinkler protected: maximum height of 3.66m (12ft.) and maximum area of 93m<sup>2</sup> (1000 ft<sup>2</sup>).</li> </ul>	Within 2 months
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6	Fire Rated Construction	Elevator shafts are directly open into exit stair enclosure-1 and basement floor.  (7 Storied Building)	Modify the elevator shaft as per RSC Technical Guideline (Standard) V1-6.14.3. An exit stairway shall not be built around a lift shaft unless both of them are located in a smoke proof enclosure and made of a material with fire resistance rating required for the type of construction of smoke proof enclosure. So, rearrange the facility to provide separate enclosure for lifts. If not possible anyway then provide a minimum 2-hr fire- rated elevator shaft with listed fire rated lift landing door to separate from each floor level.)	Within 3 months
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7	Fire Rated Construction	<p>Discharge path of the west exit of the dyeing shed-2 is less than 10 ft. wide which is not separated from the building interior; discharge path of the stair-1 of 7 storied building on the ground floor is not separated from the loading area; discharge path of the stair-2 of 7 storied building on the ground floor is not separated from the interior of the building.</p> <p>(7 storied building, Dyeing Shed-2 &amp; Dyeing Finishing Shed-3)</p>	<p>An egress court serving as a portion of the exit discharge shall be open to the sky or provided with a fire resistance rated enclosure the same as the exit enclosure. Egress courts less than 3050 mm (10 ft) in width (as measured from the building and the adjacent property line) shall be provided with walls having a 1-hr fire resistance rated construction for a distance of 3050 mm (10 ft) above the floor of the court.</p>	Within 3 months
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8	Fire Rated Construction	Stair-2 discharge the occupant inside the building on the ground floor.  (7 Storied Building)	<p>A maximum of 50 percent of the number and capacity of the exit enclosures can discharge through areas on the level of exit discharge where all of the following are met:</p> <p>(1) Automatic sprinkler protection is provided throughout the level of exit discharge or portion of the level of discharge where separated from non sprinklered portions of the floor by fire barriers with the same fire resistance rating as the exit enclosure.</p> <p>(2) The interior discharge is not through a storage or hazardous occupancy.</p> <p>(3) The entire area of the level of exit discharge is separated from areas below by construction having a fire resistance rating not less than that required for the exit enclosure.</p> <p>(4) The way to the exterior shall be free and unobstructed and shall be readily visible and identifiable from the point of discharge of the interior exit.</p>	Within 3 months
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9	Fire Rated Construction	<p>Electrical cable passes through exit stair enclosure-1 on the ground floor.</p> <p>(7 Storied Building)</p>	<p>Penetrations into and through an exit enclosure shall be prohibited with the exception of required exit doors, sprinkler piping, standpipes, electrical raceway for fire alarm equipment, and electrical conduit serving the exit enclosure.</p>	<p>Within 3 months</p>
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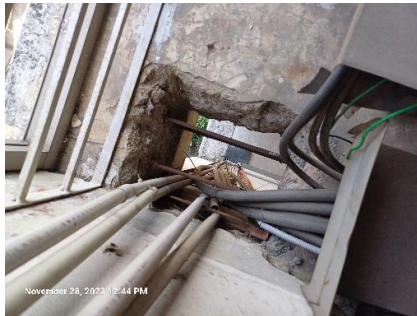
10	Fire Rated Construction	<p>Storages were found underneath the cutting table on the 6th floor.</p> <p>(7 Storied Building)</p>	<p>Storage underneath the cutting tables shall be kept clear of combustibles at all time, except as provided for miscellaneous storage in accordance with 3.4.2.1.6 or where automatic sprinkler protection is installed. Where an automatic sprinkler system is installed sprinklers are required to be installed beneath cutting tables greater than 4 ft in width that are used for storage of combustibles.</p>	Within 2 months
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11	Fire Rated Construction	<p>The exit stairs are not separated from work areas, other spaces on each floor by fire-rated construction.</p> <p>(Utility Building-2)</p>	<p>Provide minimum 1-hr rated doors for buildings with 3 or fewer stories and 1.5-hr fire rated doors for buildings that are 4 or more stories. Seal all unprotected openings to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing and positive latching and that they are provided with fire exit (panic) hardware where serving production floors. If fire doors are required to be held open for functional reasons, provide automatic closing devices tied to the fire alarm system. Once fire doors are installed, every door in a stair enclosure serving more than 5 stories shall be provided with re-entry unless it meets.</p>	Within 3 months
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12	Fire Rated Construction	<p>Unsealed penetrations and openings are located in the fire-rated floor/ceiling assemblies.</p> <p>(Cable riser in Utility Building-2)</p>	<p>Provide a minimum 2-hr fire rated shaft to separate the utility risers from each floor level or seal all penetrations and openings in floors/ceiling assemblies by 3-hr fire rated listed/certified materials. The installation of such fire rated materials shall be following certified design.</p>	Within 3 months
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13	Means of egress	Fire evacuation map was not posted at all the entrance to each exit stair and some were found not updated as per on-site.  (7 Storied Building, Dyeing Shed-2, Dyeing Finishing Shed-3)	Fire evacuation maps shall be posted at the entrance to each exit stair.	Within 1 month
14	Means of egress	Building did not have stair designation signs, floor designation signs and occupant load signs at required locations on all floors.  (Utility Building-2)	Provide stair designation signs, floor designation signs and occupant load signs at required locations.	Within 1 month
15	Means of egress	Aisles not provided and properly marked.  (Dyeing Shed-2 & Dyeing Finishing Shed-3)	Provide minimum aisle widths of 36-in and mark properly.	Within 1 month



16	Means of egress	Dead end corridor found exceeds the limit. (Dyeing Finishing Shed-3)	Dead end corridor shall be in accordance with RSC Technical Guidelines 6.13.3	Within 1 month
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17	Means of egress	<p>Guard rails are not provided on the ground floor at discharge of the stair-1 of 7 storied building; stair enclosure on all the floors of utility building-2, 1st &amp; 2nd floor of the utility building-2, east exit discharge way of the Dyeing Shed-2.</p> <p>( 7 storied building, utility building-2 &amp; Dyeing Shed-2)</p>	<p>Provide guardrails on both sides of the stairway. Guards shall be a minimum height of 1067 mm (42 in)</p>	<p>Within 1 month</p>
18	Means of egress	<p>Three storied Utility Building-2 has single exit at all floors level.</p> <p>(Utility Building-2)</p>	<p>The number of means of egress from any floor, story or portion thereof shall not be less than 2 except where a single exit is permitted by RSC guidelines 6.6.2, a single means of egress is permitted by RSC guidelines 6.6.5 or where a greater number is required by RSC guidelines 6.6.3.</p>	<p>Within 3 months</p>

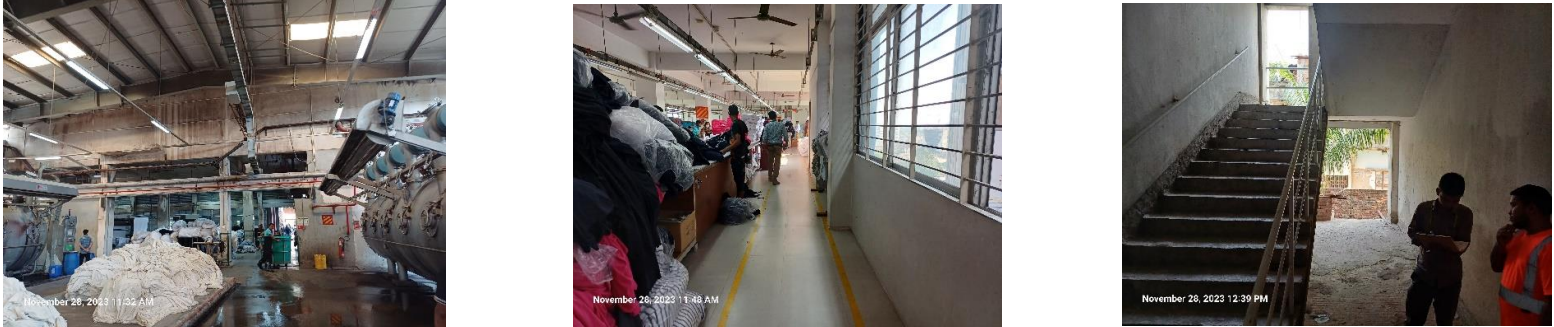


19	Means of egress	<p>Egress path found obstructed on exit discharge position where changed in elevation of walking surfaces exceed 6.35 mm (1/4 in) but not provided with a beveled slope.</p> <p>(discharge position of stair of utility building-2, east exit discharge position of Dyeing Shed-2)</p>	<p>Abrupt changes in elevation of walking surfaces shall not exceed ¼ in. unless provided with a beveled slope of 1 in 2 that do not exceed ½ in. Changes greater than ½ in. shall meet the requirements for RSC Standard 6.3.5.</p>	Within 1 month
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20	Means of Egress	Travel distance of egress exceeds limit on the dyeing Finishing Shed-3 ( found 52 m approximately).  (Dyeing Finishing Shed-3)	Reconfigure the egress arrangement or provide an additional exit so that the travel distance shall not exceed 23 m (75 ft).	Within 2 months
21	Means of egress	Electrical DB board found installed inside the exit stair enclosure-1.  (7 Storied Building)	Remove the DB board from the exit stair enclosure.	Within 1 month



22	Emergency Lighting	<p>Based on the number and location of emergency lights observed, adequate illumination levels are not anticipated along egress routes and at exit stairs.</p> <p>(7 Storied Building, Utility building-2, Dyeing Shed-2 &amp; Dyeing Finishing Shed-3)</p>	<p>Test the emergency lighting system on each floor and provide additional emergency fixtures to supply adequate illumination along the means of egress. Provide a minimum illumination of 10 lux at the floor level within exit stairs and along exit discharge paths and a minimum 2.5 lux along exit access aisles.</p>	Within 2 months
				
23	Emergency Lighting	<p>Exit signage and directional signs were not provided along a path of egress.</p> <p>(Dyeing Shed-2 &amp; Dyeing Finishing Shed-3)</p>	<p>Provide exit signs above all building exits to the exterior, all doors to the exit stairs; and illuminated directional signs shall be provided where there is a change in the direction for the path of travel and the direction to an exit is not obvious.</p>	Within 1 month


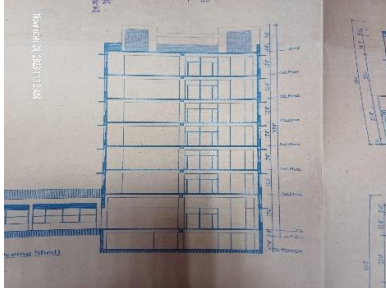


24	ITM Emergency Lighting	Inspection, testing, and maintenance for the emergency lighting system was not in accordance with The RSC Technical Guidelines (Standard).	Inspect, test and maintain the emergency lighting system in accordance with The RSC Technical Guidelines (Standard). Keep written records on-site.	Within 1 month
25	Fire Alarm & Detection system	Automatic fire alarm and detection system installation has been found complete which requires detailed review to confirm compliance with NFPA 72 and The RSC Technical Guidelines (Standard).	Submit the fire alarm system design to RSC for review. Once the design is reviewed, install and modify the fire detection and alarm system throughout the buildings in accordance with review comment, RSC Technical Guidelines (Standard) and NFPA 72. After installation the owner shall conduct internal testing and commissioning and then contact the RSC for witness of final acceptance testing. Also inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with Table-14.3.1 of NFPA 72.	Design Review within 2 months and installation/modification within 4 months



26	Fire Protection System (Standpipe)	<p>The building has highest occupiable floor level more than 11 meter (33 ft.) which requires standpipe system.</p> <p>(7 Storied Building &amp; Utility building-2)</p>	<p>Submit the standpipe system drawing to RSC for review. Once the design is reviewed, install and modify the standpipe system throughout the building in accordance with review comment, RSC Standard and NFPA 14, 20, 22 and 24. After installation the owner shall conduct internal testing and commissioning and then contact the RSC for witness of final acceptance testing.</p>	<p>Design Review within 2 month and installation within 4 months (If require).</p>
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27	Fire Protection System (Sprinkler)	<p>The highest occupiable floor level of the 7 storied building is more than 75 ft. which requires sprinkler system. Also sprinkler system is required for the Dyeing Shed-2 &amp; Dyeing Finishing Shed-3 as it is attached with the 7 storied building on the ground floor where a single fire event is considered.</p> <p>(7 Storied Building, Dyeing Shed-2 &amp; Dyeing Finishing Shed-3)</p>	<p>Submit the sprinkler system drawing to RSC for review.</p> <p>Once the design is reviewed, install and modify (if required) the sprinkler system throughout the building in accordance with review comment, RSC Standard and NFPA 13,20,22 and 24. After installation the owner shall conduct internal testing and commissioning and then contact the RSC for witness of final acceptance testing.</p>	<p>Design Review within 2 month and installation within 4 months.</p>
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28	ITM of Fire Alarm System	<p>Inspection, testing, and maintenance for the fire alarm system is not in accordance with NFPA 72 or as per RSC standard.</p>	<p>Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72 (Table-14.3.1) or as per RSC standard.</p>	<p>Within 1 Month after installation.</p>

29	ITM of Standpipe System	Inspection, testing and maintenance for the standpipe system was not in accordance with standard.	Inspect, test and maintain the standpipe system in accordance with of NFPA 25 and keep written records on-site.	Within 1 Month after installation.
30	ITM of Pump System	Inspection, testing, and maintenance for the Fire pump & water system is not in accordance with NFPA 25 or as per RSC standard.	Inspect, test and maintain the fire pump & water system and keep written records on-site, in accordance with NFPA 25 or as per RSC standard.	Within 1 Month after installation.
31	ITM of Sprinkler System	Inspection, testing, and maintenance for the sprinkler system is not in accordance with NFPA 25, 13 or as per RSC standard.	Inspect, test and maintain the sprinkler system and keep written records on-site, in accordance with NFPA 25, 13 or as per RSC standard.	Within 1 Month after installation.
32	ITM extinguisher	Inspection, testing and maintenance of portable fire extinguishers is not in accordance with NFPA 10.	Inspect, test and maintain the portable fire extinguishers and keep written records on-site, in accordance with NFPA 10 and RSC Technical Guidelines.	Within 1 month

33	Human Element Program	<p>The required no smoking signs are not present in the factory.</p> <p>(7 Storied Building)</p>	<p>Smoking is prohibited in any garment factory building or separate storage building. Signs shall be posted in Bengali and English at all building entrances. If the factory creates a designated smoking area outside the building, information of these areas will be posted on the signs.</p>	<p>Within 1 week</p>
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