

INITIAL FIRE SAFETY INSPECTION REPORT

Factory Name: Hydroxide Knitwear Ltd. (Extension)

RSC ID: 24560

Address: Mouchak, Kaliakoir, Gazipur, Dhaka.

Google Coordinate: 24.022136, 90.296435

Other Factories: Hydroxide Knitwear Ltd. (RSC ID-9196)



Inspected By: Nirmal Chandra Sinha and Md. Khalaquzzaman

Date: 23 May 2023

Introduction:

ID: 24560

Hydroxide Knitwear Ltd. (Extension); complex was surveyed for fire safety on **23-May-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.

Table 1-3 summarizes the fire safety non-compliant issues identified during the inspection. Recommendations have been provided to address each issue with specific remediation timeline. 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 approval.

Table Number	Total Findings	Building Number/ Name	Finding Range	Remarks
1	23	Building # 2 & 5 (Merge)	F-1 to F-23	
2	9	Building # 4	F-24 to F-32	
3	6	Shed # 1 & Building # 3	F-33 to F-38	




Table-1: Findings & Recommendations

Sly No.	Category		Required Action	Remediation Time Frame
F-1	Fire Rated Construction	<p>Building-5: The exit stairs are not separated from work areas and other spaces on each floor by fire-rated construction.</p>	<p>Exits enclosure connecting three or fewer stories shall be enclosed with a minimum 1-hr fire-resistance rating. Exits enclosure connecting four or more stories shall be enclosed with a minimum 2-hr fire-resistance rating. Provide minimum 1-hr. (three or fewer stories) / 1.5-hr. (four or more stories) fire rated doors and seal all unprotected openings and penetration 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 RSC Technical Guidelines (standard) 6.8.3.1.</p>	Within 3 months



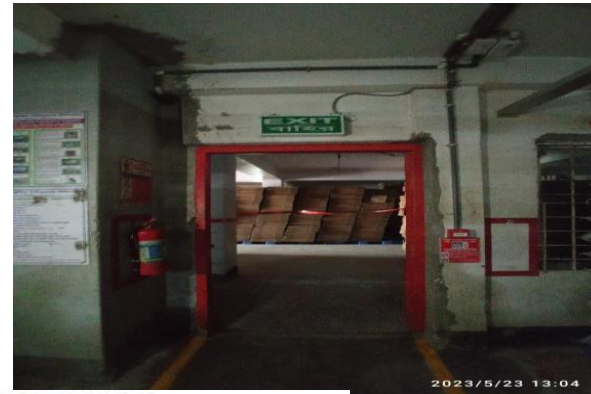
F-2	Fire Rated Construction	<p>Building-2&5: Storage rooms are not separated by fire rated construction on Ground & 1st floors.</p>	<p>Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. If store rooms are directly discharge in exit stair enclosure then openings from exit enclosure to storage spaces shall be provided with a vestibule with fire rated construction as per RSC Technical Guideline (Standard) V1-6.14.3.</p>	Within 3 months
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F-3	Fire rated construction	<p>Building-2: Areas used for combustible storage open to the factory are not separated by fire rated construction on ground, first & second floors.</p>	<p>Provide defined storage areas and limit the storage arrangement as follows:- Maximum height of 2.45m (8ft.) and maximum area of 23m² (250 ft²) – If sprinkler protected: maximum height of 3.66m (12ft.) and maximum area of 93m² (1,000 ft²). Separate areas of unenclosed combustible storage by a minimum clear distance of 3m (10ft.).</p>	Within 3 months
				
F-4	Fire rated construction	<p>Building-2: Dining areas are not separated by fire rated construction from construction area from Building-5.</p>	<p>Dining shall be separated from other area by minimum 3 hr. rated separation. Seal and/or protect all openings to maintain the required fire separation. Also provide at least two means of exits leading directly to the street or leading to a corridor or open space having access to exits in two independent and different direction.</p>	Within 1 month



F-5	Fire rated construction	<p>Building-5: Storage/ storage rooms from ground and 1st floor discharges directly into the exit stair enclosures.</p>	<p>Openings from exit enclosure to storage room, generator, basements, transformer boiler and similar normally unoccupied spaces shall be provided with a vestibule with fire rated construction and openings as per RSC Technical Guidelines (Standard) 6.14.3.</p> <p>Provide a 1.5 hr. fire rated door on the exit stair side and a 1-hr. fire rated door on the storeroom/storage 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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F-6	Means of egress	Building-2: Parapets or guards are provided in occupied roof which is less than 1067mm (42 inch).	Provide parapets or guards with a minimum height of 1067mm (42 inch.).	Within 1 month
				
F-7	Means of egress	Building-2 & 5: Handrails are not provided in the exit stair.	Provide handrails on both sides of the exit stair. New handrails shall have a minimum height of 865 mm (34 in.) and a maximum height of 965 mm (38 in.) as measured from the leading edge of the tread. Intermediate handrails shall be provided when the stair width exceeds 2.2 m (87 in.).	Within 1 month



F-8	Means of egress	<p>Building-5: Combustible storage was observed in North-East exit stair enclosures of building-5</p>	Remove all storage from exit stairs and egress paths.	Immediately
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F-9	Means of egress	Building-5: North-East exit discharge path was obstructed on the ground floor of the building-5.	Provide steps outside exit door from ground floor to courtyard and make a road / egress path for smooth discharge of occupants. Means of egress shall be maintained continuously free and clear of all obstructions	Immediately
<div style="display: flex; justify-content: space-around;">   </div>				
F-10	Means of egress	Building-2: Width of exit stairs is less than 1.5 m (60 in.) at building-2 (existing 30 inch).	Provide exit stair minimum clear and unobstructed width 1.5 m (60 in.) in as per RSC Technical Guidelines (Standard) 6.5.6.2.1.	Within 3 months



F-10	Means of egress	<p>Building-5: Aisles did not provide in ground and 1st floor.</p>	<p>Aisles shall be provided with a minimum unobstructed clear-width of 0.9 m (36 in.).</p>	<p>Within 1 month</p>
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F-12	Means of egress	Building- 2 & 5: Building did not have stair designation signs and occupant load signs at required locations.	Provide stair designation signs and occupant load signs at required locations.	Within 1 month.
F-13	Means of egress	Building- 2 & 5: Fire evacuation maps is not posted at the entrance of all exit stair.	Fire evacuation maps shall be posted at the entrance to each exit stair.	Within 1 month.
F-14	Egress Lighting	Building- 2 & 5: Based on the number and location of emergency lights observed, adequate illumination levels are not anticipated along egress routes.	Test the emergency lighting system on each floor and provide additional emergency fixtures to provide adequate illumination along the means of egress. Provide a minimum illumination of 10 lux at the floor level within exit stairs and exit discharge paths and minimum 2.5 lux along exit access aisles.	Within 1 month.
F-15	Egress Lighting	Building- 2 & 5: Exit signage not illuminated during inspection.	Lighted exit signs shall be placed at entrance to an exit. Additional exit signs shall be placed throughout the facility anywhere the continuation of the egress is not obvious. Lighted exit signs shall be provided with either battery backup or uninterruptable power supply systems and shall be continuously illuminated.	Within 1 month.

F-16	Egress Lighting	Building- 2 & 5: Directional signs are not provided where direction of the path of travel to an exit has changed.	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.	Within 1 month
F-17	Egress 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
F-18	Inspection Testing and Maintenance of Portable Fire 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 onsite, in accordance with NFPA 10.	Within 3 months
F-19	Fire Alarm & Detection system	The Required Fire Alarm system is not installed in accordance with the RSC Technical Guidelines (Standard) and NFPA-72.	Submit the fire alarm system design to RSC for review. Once the design is reviewed, install and modify the system throughout the building 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.	Design within 2 months, Modification if required within 4 months.



F-20	Inspection Testing and Maintenance of Fire Alarm and Detection System (ITM)	Inspection, testing, and maintenance for the fire alarm system is not in accordance with NFPA 72.	Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.	Within 3 months
F-21	Fire Protection System (Standpipe System)	The existing building has an occupied floor greater than 10 meter (33 feet) and provided with standpipe protection. Standpipe system installation requires detailed review to confirm compliance with NFPA 14 and The RSC Technical Guidelines (standards)	Submit as-built drawings, testing records, equipment certification and other relevant documentation to the RSC for review and approval.	Design Review within 2 months and modification within 6 months (if required).
F-22	Inspection, testing, and maintenance of the Standpipe System (ITM).	Inspection, testing, and maintenance of the Standpipe System is not in accordance with NFPA 25.	Inspect, test and maintain the automatic Standpipe System, and keep written records on-site, in accordance with NFPA 25.	Within 3 months.

F-23	Inspection, testing, and maintenance of the Fire Pump (ITM).	Inspection, testing and maintenance of the fire pump system is not in accordance with NFPA 20.	Inspect, test and maintain the fire pump system and keep written records on-site, in accordance with NFPA 20.	Within 3 months.
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Table-2: Findings & Recommendations of Building-4

F-24	Fire Rated Construction	The factory Building-4 (1st floor) is steel construction which appears to be nonrated and were found in exposed condition. (Construction date was March 2014 thus the interim building shall meet BNBC 2006 or RSC requirement).	In interim construction slab & beam shall be 0.5-hr rated and column 1-hr rated. No fire protection is required where unprotected slab & beam assembly demonstrates a 0.5-hour fire rating. All columns are required to be protected with 1 hour fire rating. Non-rated building structure (Type-3) is not allowed for G2 occupancy as per BNBC 3.1.3.1 and table 3.2.4. Provide fire-resistive rated construction barriers following Section 4.4 and Table 4.1.1 of the RSC Technical Guidelines (Standard) or Table 3.3.1 and Table 4.1.1 from BNBC Part 4. Consult a qualified fire protection engineer to design the rated construction barriers.	Within 6 months
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F-25	Fire Rated Construction	The exit stairs are not separated from work areas and other spaces on each floor by fire-rated construction.	The exit stair enclosure shall be provided with a minimum 1-hr fire resistance rating for adjacent occupancy.	Within 3 Months
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F-26	Means of egress	Combustible storage was observed in South-East exit stair enclosure of building-4.	Remove all storage from exit stairs and egress paths.	Immediately
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F-27	Means of egress	Common path of egress travel exceeds 30 m. Location: Building-3/ 1st floor. Occupancy: Store.	Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.	Within 2 Months
				
F-28	Means of egress	Locking features were found in 1st floor of building-4	<ol style="list-style-type: none"> 1. Remove all non compliant locking features from egress doors. 2. If locks are required for security reasons, utilize special door locking features complying with NFPA 101 and RSC Technical Guidelines (Standard) 6.8.2. 3. Doors may be locked where the latch and lock are disengaged with one motion where the occupant load does not exceed 49 persons. 4. Doors may be provided with locking hardware from the ingress side provided that a panic bar is installed on any door with an occupant load exceeding 49 persons. 	Immediately



F-29	Means of egress	Building did not have stair designation signs and occupant load signs at required locations.	Provide stair designation signs and occupant load signs at required locations.	Within 1 month.
F-30	Means of egress	Fire evacuation maps is not posted at the entrance of exit stair.	Fire evacuation maps shall be posted at the entrance to each exit stair.	Within 1 month.
F-31	Fire Alarm & Detection system	The Required Fire Alarm system is not installed in accordance with the RSC Technical Guidelines (Standard) and NFPA-72.	Submit the fire alarm system design to RSC for review. Once the design is reviewed, install and modify the system throughout the building 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.	Design within 2 months, Modification if required within 4 months.

F-32	Inspection Testing and Maintenance of Fire Alarm and Detection System (ITM)	Inspection, testing, and maintenance for the fire alarm system is not in accordance with NFPA 72.	Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.	Within 3 months
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Table-3: Findings & Recommendations of Shed-1 [Yearn House] & Building-3 [Child care, Medical & Rest room]

F-33	Fire Rated Construction	The factory building Shed-1 is steel construction which appears to be nonrated and were found in exposed condition. (Construction date was April 2014 thus the interim building shall meet BNBC 2006 or RSC requirement.	<p>In interim construction slab & beam shall be 0.5-hr rated and column 1-hr rated- No fire protection is required where unprotected slab & beam assembly demonstrates a 0.5-hour fire rating. All columns are required to be protected with 1 hour fire rating.</p> <p>Non-rated building structure (Type-3) is not allowed for G2 occupancy as per BNBC 3.1.3.1 and table 3.2.4. Provide fire-resistive rated construction barriers following Section 4.4 and Table 4.1.1 of the RSC Technical Guidelines (Standard) or Table 3.3.1 and Table 4.1.1 from BNBC Part 4. Consult a qualified fire protection engineer to design the rated construction barriers.</p>	Within 6 months
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F-34	Means of egress	Shed-1: Common path of egress travel exceeds 35 m. Occupancy: Store.	Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.	Within 2 Months
F-35	Means of egress	Locking features were found in childcare building-3 & shed-1 exit doors/gates.	<ol style="list-style-type: none"> 1. Remove all non compliant locking features from egress doors. 2. If locks are required for security reasons, utilize special door locking features complying with NFPA 101 and RSC Technical Guidelines (Standard) 6.8.2. 3. Doors may be locked where the latch and lock are disengaged with one motion where the occupant load does not exceed 49 persons. 4. Doors may be provided with locking hardware from the ingress side provided that a panic bar is installed on any door with an occupant load exceeding 49 persons. 	Immediately



F-36	Fire Rated Construction	Flammable liquid gas cylinder found at factory premises (Kitchen area).	<p>The storage or use of liquefied or compressed flammable gas cylinders shall be prohibited within the factory building according to RSC Technical Guidelines (Standard) 3.4.2.1.11.</p> <p>If factory wants to keep it then must have to follow below rules:</p> <ol style="list-style-type: none"> 1. The storage building must be at least 3 meters away from any other building and boundaries. 2. The exterior walls of the building must have a fire resistance rating of 3 hours using noncombustible construction. 3. Doors and other openings in the exterior walls must be protected with suitable closing devices having a fire protection rating of 3 hours. 4. The building is to be used for no other purpose than the storage of LPG/CNG cylinders. 5. The building must be mechanically ventilated to control the accumulation of flammable vapors. 6. The installations must be approved and accepted by the requirements of the AHJ, Gas supply company regulations, manufacturers/supplier's instructions/guidance, Chief Inspector of Boiler (CIOB) and Chief Inspector of Explosives Bangladesh (CIEB). 	Within 3 Months
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F-37	Fire Alarm & Detection system	The Required Fire Alarm system is not installed in accordance with the RSC Technical Guidelines (Standard) and NFPA-72.	Submit the fire alarm system design to RSC for review. Once the design is reviewed, install and modify the system throughout the building 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.	Design within 2 months, Modification if required within 4 months.
F-38	Inspection Testing and Maintenance of Fire Alarm and Detection System (ITM)	Inspection, testing, and maintenance for the fire alarm system is not in accordance with NFPA 72.	Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.	Within 3 months