

INITIAL FIRE SAFETY INSPECTION REPORT

KDS Textile Mills Ltd.

RSC ID: 24481

251-252, Nasirabad I/A, Chittagong

Other Factories: KDS Apparels Ltd., KDS Apparels Ltd. (Extension), KDS Washing Plant. (In the premises)



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Date: 15-09-2022

Fire Safety Inspection Report

Introduction:

KDS Textile Mills Ltd. complex was surveyed for fire safety on 15-09-2022 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):

There is total 10 buildings in the factory premises. Four are main building and 6 are ancillary buildings.

The main buildings are as:

1. Block-C (Six storied factory building-RCC).
2. Extension of Block-C (5 storied steel structure with occupied roof)
3. Block-A (6 storied factory building with a mezzanine floor and the roof of the building is constructed by steel)
4. Block-B (7 storied RCC building).

Block-C and extension of block-C merged to each other on every floor. Block-C and block-A also merged to each other for most of the floors.

The ancillary buildings are:

5. Powerhouse (2 storied RCC)
6. EGB (Single storied shed-boiler)
7. WTP Shed (2 storied shed)
8. ETP Building (2 storied ETP building)
9. Boiler House (Single storied shed)
10. Security Building (Single storied RCC).

There is total 4 RSC IDs for the buildings, the ID wise summary is below:

ID	Factory Name	Coverage	Remarks
24481	KDS Textile Mills Ltd.	Block-A: Ground, Mezzanine and 1 st floor.	New ID
		Block-B: Ground floor to 3 rd floor.	
		Block-C: Ground to 2 nd floor.	
		Extension of Block-C: Ground to 2 nd floor.	
		Boiler House	
		ETP Building	
		EGB	
		Security Building	
24482	KDS Washing Plant.	Block-B: Ground floor and 1 st Floor.	New ID
9498	KDS Apparels Ltd.	Block-A: 2 nd floor to 5 th floor.	Old ID
		Powerhouse	
		WTP Shed.	
24439	KDS Apparels Ltd. (Extension)	Block-B: 4 th to 6 th floor.	Old ID
		Block-C: 3 rd to 5 th floor.	
		Extension of Block-C: 3 rd and 4 th floor.	

Area Table:

Block-A

Floor	Area (Sft)	Remarks
Ground	21957	With Mezzanine Floor
1 st	17572	
2 nd	17572	
3 rd	17572	
4 th	17572	
5 th	15080	

Block-B:

Floor	Area (Sft)	Remarks
Ground	14732	
1 st	15500	
2 nd	15500	
3 rd	15500	
4 th	15500	
5 th	15500	
6 th	15500	

Block-C & Block-C (Extension)

Floor	Area (Sft)	Remarks
Ground	28160	
1 st	29847	
2 nd	29847	
3 rd	29847	
4 th	29847	
5 th	20847	Roof of C Extension- 2000 sft. (appx)

Findings & Recommendations :

Table 1 summarizes the major fire safety issues identified (**Block-A: Ground, Mezzanine and 1st floor, Block-C: Ground to 2nd floor, Extension of Block-C: Ground to 2nd floor, Boiler House, ETP Building, EGB, Powerhouse, Security Building-Finding: 1-18**) 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:

Sl No.	Category	Findings	Required Action	Remediation Time Frame
F-01	Fire Rated Construction	Block C (extension) is made of steel and found exposed without any fire protection which is defined as non-rated construction and a violation of BNBC-2006.	Construction must be of type 1 (See BNBC 2006 Part 3 Table 3.2.4, page 10356 and Part 3, Table 3.1.9, page 10319). Provide/ensure required fire rating on the structural elements by following Section 4.4 and Table 4.4.1 of the RSC Technical Guideline (standard) V1 or Table 3.3.1 and Table 4.1.1 from BNBC 2006. Consult a qualified fire protection engineer to design the rated construction barriers.	Within 6 months
 				

F-02	Fire Rated Construction	Penetrations through floor/ceiling assemblies are found unsealed. Location: Expansion Joint between Block A & C.	Seal all penetrations and openings in floor/ceiling assemblies by third-party certified fire rated materials to maintain minimum 3-hr fire resistance rating.	Within 3 months
				
F-03	Fire Rated Construction	Rooms used for storage of combustible material is not separated from the surrounding occupancy/areas. Location: Roof top of block C.	Rooms used for storage of combustible materials shall be separated from the surrounding occupancy with a minimum 1 hour construction.	Within 3 months



F-04	Fire Rated Construction	Areas used for in-process storage of combustible materials are open to the surrounding occupancy. Location: 1st floor of Block A & C.	Provide defined storage areas and limit the storage arrangement as follows: Maximum height of 2.45 m and maximum area of 23 m² and is separated by a minimum 3.0 m (10ft) from other storage areas and they do not exceed 10 percent of the building area of the story in which they occur. or, Enclose the storage area from the surrounding occupancy with a minimum 1 hour construction.	Within 3 months
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F-05	Fire Rated Construction	Elevator shafts are directly open into the production floor without proper fire separation. Location: Block-C	Ensure minimum 2-hr listed/3rd part certified fire rated lift landing doors for elevator shafts otherwise close the area of the shaft with a 2-hr fire-rated construction barrier.	Within 3 months
				

F-06	Fire Rated Construction	Exit stair-1 discharges the occupants inside the building at ground floor. Location: Block A	1. Modify stair to discharge directly outside Or 2. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas). Note: 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 the conditions mentioned in section 6.17.3 of RSC Technical Guidelines (Standard) V1.0 are met.	Within 3 months
				

F-07	Fire Rated Construction	Exhaust Gas Boiler (EGB) room is not properly separated by fire rated construction with Block B.	Boilers or other heat producing equipment shall be separated from other occupancies by a minimum 1-hr fire rated construction (wall, floor, slab etc.). Seal all penetrations and openings (door, window etc.) should be protected by 0.75-hr (45 min) fire rated materials to maintain the fire separation if required. All exhaust systems shall discharge to the exterior of the building in a safe location. Or Relocate it to exterior of the building and maintain a minimum 3m (10 ft.) spatial separation distance from the building.	Within 3 months
				

F-08	Fire Rated Construction	The exterior exit stair is not separated from the building. Location: EGB Building	Exterior exit stairs shall be separated by minimum 1-hr fire-rated construction and The rating of the exterior wall shall extend 3.05 m (10 ft.) beyond the ends of the stair structure. Provide minimum 1-hr fire rated doors to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing, 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.	Within 3 months
				

F-09	Means of Egress	The exit openings are not remotely located from each other such that a single fire event could compromise both exits. Location: Yarn godown area, 2nd floor of block C.	Modify the exits arrangement or Provide additional exit to ensure that the exit doors or means of egress openings are located a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exits or egress openings (Where the building is provided with a complete automatic sprinkler system, the separation of the exits or means of egress openings shall be not less than one-third of the maximum overall diagonal dimension). In addition, ensure that the common path of egress travel for Group H (storage) occupancies with not more than 30 occupants does not exceed 30 m (100 ft).	Within 6 months
				

F-10	Means of Egress	Handrails are not provided on both sides of each exit stairs on all floors. Location: 1st floor of EGB Building.	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 2 months
				

F-11	Means of Egress	Exit doors at ground floor serving 50 or more occupants does not swing in the direction of egress travel. Location: Roof top of block C.	Modify the egress door to swing in the direction of egress travel.	Within 1 month
				
F-12	Egress Lighting	Directional signs are not provided where direction of the path of travel to an exit has changed. Location: Block A, C & Cextension.	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 2 months

F-13	Fire Alarm & Detection System (FADS)	Fire alarm and detection system installation complete which requires detailed review to confirm compliance with NFPA 72 and 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 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 1 month and modification/ installation with 3 months
 				

F-14	Fire Suppression System (SUPS)	The highest occupied floor of existing building (Block A, Block C and Cextension) is more than 10 m (33 ft.) above grade where class III standpipe system is mandatory, and the factory has installed Class-III standpipe which is required to be reviewed and verified.	Submit the standpipe system drawing to RSC for review. Once reviewed, install or modify the standpipe system throughout the building in accordance with RSC Technical Guideline (Standard) and NFPA 14, 20,22 and 24. After installation the owner shall contact the RSC for witness of conducting the final acceptance testing of the standpipe system.	Design within 1 month and modification/ installation with 3 months
				

F-15	Inspection, Testing and Maintenance (ITM) of FADS.	Inspection, testing and maintenance for the fire detection and alarm system was not in accordance with standard.	Inspect, test and maintain the fire alarm system and keep written records on-site, in accordance with Table-14.3.1 of NFPA 72.	Within 1 Month (after installation)
F-16	Inspection, Testing and Maintenance (ITM) of standpipe system	Inspection, testing, and maintenance for the Standpipe system is not in accordance with NFPA 25.	Inspect, test and maintain the standpipe system in accordance with NFPA 25 and keep written records on-site.	Within 1 Month (after installation)
F-17	Inspection, Testing and Maintenance (ITM) of fire pump system	Inspection, testing, and maintenance for the fire pump is not in accordance with NFPA 25.	Inspect, test and maintain the fire pump in accordance with NFPA 25 and keep written records on-site.	Within 1 Month (after installation)
F-18	Inspection, Testing and Maintenance (ITM) of fire pump system	Inspection, testing, and maintenance for the sprinkler is not in accordance with NFPA 25.	Inspect, test and maintain the fire pump in accordance with NFPA 25 and keep written records on-site.	Within 1 Month (after installation)

Findings & Recommendations :

Table-2 summarizes the major fire safety issues identified (**Block-B: Ground floor to 3rd floor-finding-19 to 36**) 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-2:

SI No.	Category	Findings	Required Action	Remediation Time Frame
F-19	Fire Rated Construction	The exit stair-1 enclosures (Block B) are not separated from work areas and other spaces by fire-rated construction due to unprotected opening with building-A and C (Under common roof) and non-functionality of installed fire rated doors.	The exit stair enclosure shall be provided with a minimum of 2- hr. fire resistance rating . Provide 1.5 hr. fire rated door and seal all penetrations and openings by 2 hr. fire rated fire rated barrier construction. Provide a fire-resistive rated assembly between the exterior exit stairs and the building up to 10 ft. beyond the end of the stair to achieve the required separation. The rated assembly shall be approved and/or designed by a qualified fire protection engineer. 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.	Within 3 months



F-20	Fire Rated Construction	Rooms used for storage of combustible materials are not separated from the surrounding occupancy/areas. Location: Wastage store at 3rd floor and spare store at 2nd floor, Block B.	Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.	Within 3 months

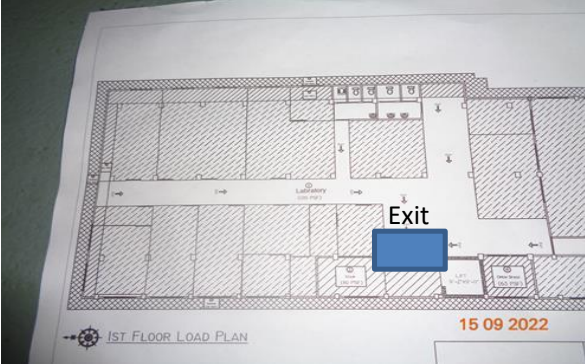
F-21	Fire Rated Construction	Main chemical storage area is not separated by fire-rated construction having unsealed penetrations and openings from washing section, powerhouse and general store. Chemical Sub-store is not separated from WTP having unprotected penetrations. Location: Ground floor of Block B.	Ensure the chemical store fire separated by minimum 4-hr fire rated construction barrier with only occupancies with G and H following table 3.2.1 of BNBC-2006. No opening is permitted in the 4-hr rated wall towards any other occupancy. Follow section 2.13 of BNBC-2006 as a guideline chemical store while rearranging.	Within 3 months
 				

F-22	Fire Rated Construction	Areas used for in-process storage of combustible materials are open to the surrounding occupancy. Location: at 3rd floor and 2nd floor Block B.	Provide defined storage areas and limit the storage arrangement as follows: Maximum height of 2.45 m and maximum area of 23 m² and is separated by a minimum 3.0 m (10ft) from other storage areas and they do not exceed 10 percent of the building area of the story in which they occur. or, If sprinkler protected, Maximum height 12 ft (3.66 m) and maximum area of 1000 ft² (93 m²) and separated by a at least 25 ft (7.62 m) and does not constitute more than 10 percent of the building area or 4000 ft² (372 m²) of the sprinklered area, whichever is greater. or, Enclose the storage area from the surrounding occupancy with a minimum 1 hour construction.	Within 3 months
 				

F-23	Fire Rated Construction	Electrical distribution board is located inside of both exit stairs. Location: Stair 1, Block B.	Relocate all electrical panel box from exit stairs.	Within 1 month
				

F-24	Means of Egress	The egress path along means of egress has interrupted by obstruction/storage on the fabric store in 3rd floor. Location: Block B.	Aisles shall be provided with a minimum unobstructed clear-width of 0.9 m (36 in.). Means of egress shall be maintained continuously free and clear of all obstructions/storage.	Immediately
				

F-25	Means of Egress	The exit openings are not remotely located from each other such that a single fire event could compromise both exits. Location: finished fabric store, 3rd floor of block B.	Modify the exits arrangement/ openings or Provide additional exit to ensure that the exit doors or means of egress openings are located a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exits or egress openings (Where the building is provided with a complete automatic sprinkler system, the separation of the exits or means of egress openings shall be not less than one-third of the maximum overall diagonal dimension). In addition, ensure that the common path of egress travel for Group H (storage) occupancies with not more than 30 occupants does not exceed 30 m (100 ft).	Within 4 months
 				

F-26	Means of Egress	Only one exit has been provided and the travel distance exceeds 100 ft. at R&D Lab, 1st floor. Location: Block B	Maintain maximum 30 occupants having a travel distance of 23m (75 ft). Or Provide additional exit.	Within 5 months
 				

F-27	Means of Egress	The common path of egress travel exceeds 100 ft at finished fabric store (3rd Floor) and exceeds 25 ft at chemical store (Ground Floor). Location: Block B.	The common path of egress travel for Group H (storage) occupancies with not more than 30 occupants shall not exceed 30 m (100 ft). The common path of egress travel for Group J (high hazard) occupancies shall not exceed 8 m (25 ft).	Within 5 months
				

F-28	Means of Egress	Fire evacuation maps is not posted at the entrance of all exit stair. Location: 1st Floor (Lab), Block B.	Fire evacuation maps shall be posted at the entrance to each exit stair.	Within 2 months
F-29	Egress Lighting	Adequate illumination levels are not anticipated along egress routes. Location: Storeroom, 3rd floor, Block B.	Provide 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 2 months
F-30	Egress Lighting	Directional signs are not provided where direction of the path of travel to an exit has changed. Location: 2nd & 3rd Floor in Block B.	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 2 months

F-31	Emergency Lighting ITM	Inspection, testing, and maintenance for the exit sign and emergency lighting system was not in accordance with The RSC Technical Guidelines (Standard) V1.	Inspect, test and maintain the exit sign and emergency lighting system in the accordance with The RSC Technical Guidelines (Standard) V1 standard. Keep written records onsite.	Within 2 months
F-32	Fire Alarm & Detection System	Fire alarm and detection system installation complete which requires detailed review to confirm compliance with NFPA 72 and 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 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 1 month and modification/ installation with 3 months
 				

F-33	Fire Suppression System (SUPS)	The highest occupied floor of existing building (Block A, Block C and Cextension) is more than 10 m (33 ft.) above grade where class III standpipe system is mandatory, and the factory has installed Class-III standpipe which is required to be reviewed and verified.	Submit the fire suppression system (fire pump & standpipe) design and documents to RSC for review. Once the design is reviewed, install and modify the fire suppression system throughout the building in accordance with review comment, RSC Technical Guidelines (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.	Design within 1 month and modification/ installation with 3 months
 				
F-34	Inspection, Testing and Maintenance (ITM) of FADS.	Inspection, testing and maintenance for the fire detection and alarm system was not in accordance with standard.	Inspect, test and maintain the fire alarm system and keep written records on-site, in accordance with Table-14.3.1 of NFPA 72.	Within 1 Month (after installation)

F-35	Inspection, Testing and Maintenance (ITM) of standpipe system	Inspection, testing, and maintenance for the Standpipe system is not in accordance with NFPA 25.	Inspect, test and maintain the standpipe system in accordance with NFPA 25 and keep written records on-site.	Within 1 Month (after installation)
F-36	Inspection, Testing and Maintenance (ITM) of fire pump system	Inspection, testing, and maintenance for the fire pump is not in accordance with NFPA 25.	Inspect, test and maintain the fire pump in accordance with NFPA 25 and keep written records on-site.	Within 1 Month (after installation)