

# **FIRE SAFETY INSPECTION REPORT**

## **METRO KNITTING & DYEING MILLS LTD (FACTORY 2)**

**CHARABAG, ASHULIA, SAVAR**

**OTHER FACTORIES: NONE**



**ACCORD**  
on Fire and Building Safety in Bangladesh

April 9, 2014

## **SUMMARY**

**Metro Knitting & Dyeing Mills Ltd (Factory 2) was surveyed for fire safety on 4/9/2014 by Hughes Associates, Inc. This summary identifies the major deficiencies that were identified during the inspection.**

**The purpose of this survey was to identify significant fire safety issues and to provide recommendations for remediation based on applicable standards specified by the Accord. 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 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 Accord for approval.**

Table 1. Findings And Recommendations

| No. | Category                | Finding                                                                                                                                                 | Recommendation                                                                                                                                     | Remediation Timeframe |
|-----|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| F-1 | Fire Rated Construction | The ground floor utility room is not separated by fire-rated construction (openings, non-rated doors, penetrations) from adjacent spaces or stairwells. | Separate the utility room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations. | Within 3 months       |



|     |                         |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
|-----|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-2 | Fire Rated Construction | <p>Areas used for combustible storage are not separated by fire-rated construction.</p> <p>Locations include Levels Ground and 1 through 7.</p> | <p>Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.</p> <p>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 2.4m and maximum area of 23m<sup>2</sup></li> <li>- If sprinkler protected: maximum height of 3.66m and maximum area of 93m<sup>2</sup></li> </ul> <p>Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.</p> | Within 3 months |
|-----|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|



|                                                                                                                                                                                                                                           |                         |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-3                                                                                                                                                                                                                                       | Fire Rated Construction | The exit stairs are not separated from each floor by fire-rated construction. | <p>Provide minimum 1.5-hr fire rated doors and 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.</p> <p>If fire doors are required to be held open for functional reasons, provide automatic-closing devices tied to the fire alarm system.</p> | Within 3 months |
| <div style="display: flex; justify-content: space-around;">   </div> |                         |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |

|     |                         |                                                                                        |                                                                                               |                 |
|-----|-------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|
| F-4 | Fire Rated Construction | Unsealed penetrations and unprotected openings are located in the elevator shaft ways. | Provide minimum 1.5-hr fire rated doors and seal all unprotected openings to elevator shafts. | Within 3 months |
|-----|-------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|





|     |                         |                                                                  |                                                                                                                                                                                                                         |                 |
|-----|-------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-5 | Fire Rated Construction | An atrium creates a vertical opening between floors 5, 6, and 7. | Completely separate the atrium from adjacent areas of the building with 2-hr fire rated construction such that egress paths do not pass through the atrium and emergency workers are not required to access the atrium. | Within 3 months |
|     |                         |                                                                  | Alternatively, design atrium in accordance with Accord Building Standard Section 3.7                                                                                                                                    |                 |



|     |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                          |          |
|-----|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| F-6 | Egress | <p>Egress doors / gates with locking features are provided at building exits, exit stairs, along egress routes, and means of exit discharge.</p> <p>All gates/doors within the factory were open and unlocked during the inspection.</p> | <p>Remove locking features from all egress doors / gates that serve the high-rise.</p> <p>If locks are required for security reasons, utilize special door locking features complying with NFPA 101.</p> | Immediat |
|-----|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|



|     |        |                                                |                                                              |          |
|-----|--------|------------------------------------------------|--------------------------------------------------------------|----------|
| F-7 | Egress | <p>Storage was located in the exit stairs.</p> | <p>Remove all storage from exit stairs and egress paths.</p> | Immediat |
|-----|--------|------------------------------------------------|--------------------------------------------------------------|----------|



|     |        |                                                                                                                                  |                                                                                                                                                                                                                 |          |
|-----|--------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| F-8 | Egress | Collapsible gates / sliding doors are provided at building exits, exit stairs, along egress routes, and means of exit discharge. | Replace all gates / sliding doors along the means of egress with side-hinged, swinging egress doors. If locks are required for security reasons, utilize special door locking features complying with NFPA 101. | Immediat |
|-----|--------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|



|     |        |                                                                                                          |                                                       |                 |
|-----|--------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------|
| F-9 | Egress | Handrails are not provided in the northwest exit stair or the upper portion of the Level 7-8 open stair. | Provide handrails on at least one side of exit stair. | Within 3 months |
|-----|--------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------|





|      |        |                                                                                                                                                           |                                                                                                             |                 |
|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------|
| F-10 | Egress | The northwest exit stair discharges inside a covered court. The southwest exit stair discharges inside the building adjacent to the Ground floor storage. | Provide a 2-hr fire-rated exit passageway from the northwest and southwest stairs leading directly outside. | Within 6 months |
|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------|



|      |        |                                                                                                                                     |                                                                                                                            |                 |
|------|--------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-11 | Egress | Exit discharge pathway from the southeast stair is less than 10 ft wide and exposed to unprotected openings from building interior. | Seal all penetrations and openings in walls adjacent to the exit discharge pathway to maintain 1-hr fire rated separation. | Within 6 months |
|------|--------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------|



|                                                                                    |                 |                                                                                                                                                                                                                                                  |                                                                                                                 |                                                  |
|------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| F-12                                                                               | Fire Protection | The fire alarm system is antiquated, not a listed system, and does not provide alarm and notification features consistent with acceptable standards.                                                                                             | Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.      | Design within 4 months, install within 9 months  |
|  |                 |                                                                                                                                                                                                                                                  |                                                                                                                 |                                                  |
| F-13                                                                               | Fire Protection | The high-rise building has an occupied floor greater than 23m (75 ft) and is not provided with automatic sprinkler protection. The large occupant loads, heavy fuel loading, and anticipated extended egress times warrant sprinkler protection. | Provide automatic sprinkler protection throughout the building in accordance with NFPA 13.                      | Design within 6 months, install within 12 months |
| F-14                                                                               | Fire Protection | Testing and maintenance records for the fire alarm system were not available.                                                                                                                                                                    | Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72. | Within 3 months                                  |

|      |                 |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                     |                 |
|------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-15 | Fire Protection | The building is equipped with single-station smoke alarms. Smoke alarm activation sounds only a local alarm and does not provide automatic fire alarm notification of occupants. | Replace the single-station smoke alarms with automatic smoke detectors tied into the fire alarm system. Configure the fire alarm system to initiate occupant notification upon activation of any two smoke detectors in addition to the manual fire alarm stations. | Within 6 months |
|------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|



|      |                 |                                                                                                                                                        |                                                                                                                 |                |
|------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------|
| F-16 | Egress Lighting | Adequate directional exit signage is not provided in the factory floor areas or storage rooms. Exit signs are not provided in the Level 1 office area. | Provide directional exit signs to all exit stairs. Provide exit signs above all exits and exit stair entrances. | Within 1 month |
|------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------|



---

|      |                 |                                                                                                                                      |                                                                                                                                                                                                                                                                                                              |                 |
|------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| F-17 | Egress Lighting | 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 3 months |
|------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|