

Testing and Commissioning Verification Inspection Report

FACTORY : KM NOBELY GARMENTS LTD (EXTENSION
BUILDING)

DATE: 16/10/2024

FACTORY ID : 24389

INSPECTORS:

Md. Hasibur Rahman Abir



Hamed Mustakim



OVERALL INSPECTION SUMMARY


System	System Status	Inspections Conducted	Timeline
Fire Alarm (FA)	Final Verification is Required	Inspection and Testing	Within 1 Month
Sprinkler (FS)	Not Required	N/A	N/A
Fire Pump and Water Supply (FP/WS)	Final Verification is Required	Inspection and Testing	Within 1 Month
Standpipes (SP)	Final Verification is Required	Inspection and Testing	Within 1 Month

Pre-T&C documentation review was previously conducted and approved by The RSC on 11/Jun/2024 prior to the on-site inspection and testing of the installed Fire Alarm systems, Fire Pump, Standpipes and Water Supply systems.

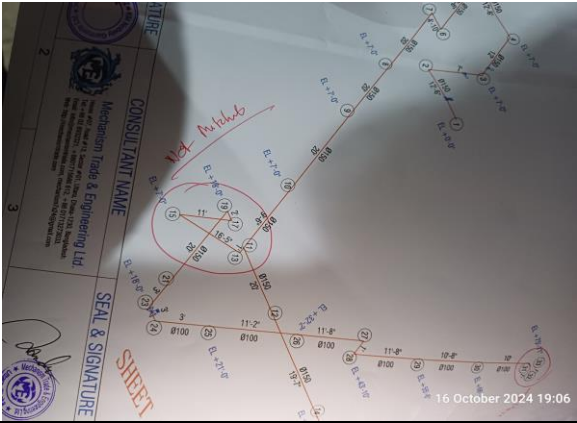
DEFICIENCIES OBSERVED (Fire Alarm (FA), Fire Pump and Water Supply (FP/WS)/ Standpipes (SP))


Item	System	Priority	Description
1	FA	Major	<p>During a trouble test at the fire alarm control panel, it was observed that loop-1 is not properly supervised. Open fault was not monitored during the test.</p> <p>For circuits directly connected to the fire alarm control panel, wiring trouble signals (i.e., OPEN CIRCUIT, GROUND FAULT, SHORT CIRCUIT) for the Class A signaling line circuit(s) (SLC) and Class B notification appliance circuit(s) (NAC) are required to indicate trouble signals specific to the trouble condition. Obtaining a single open circuit or ground fault signal shall result in the fire alarm control panel receiving a signal within 200 seconds.</p> 
2	FA	Major	<p>The factory has installed fault isolators, but on the 3rd floor of the building, the fault isolator between smoke detector L:2, D:80 and smoke detector L:2, D:79 did not function.</p> <p>Check the wiring and ensure it follows the manufacturer’s published instructions as well as NFPA 72 standards. Also, verify that the fault isolators are functioning properly.</p> 

3	FA	Major	<p>Only one cable sample of the TIANJIE brand was provided. However, during a random check, a different cable brand was found installed in the system.</p> <p>Provide samples of each cable type for verification. If the cable type is not listed by an acceptable 3rd party certification company, provide a fire resistance test report conducted by an acceptable 3rd party laboratory. Update all supporting documentation and drawing. If a single known cable type is used for any notification appliance circuit (NAC), apply the cable resistance on the voltage drop calculation as indicated on the manufacturer’s product datasheet. Alternatively, if multiple cable types are used on a single NAC, apply the highest cable resistance value for the circuit on the voltage drop calculation.</p> 
4	FA	Minor	<p>Some device address labels were missing / not fully indicated on addressable devices. (i.e. Generator and ETP room)</p> <p>Verify and provide complete device address labels on all addressable devices. Ensure that device addresses are common between the address indicated on the device, the address indicated on the as-built drawings / riser diagram and the addressed programmed into the fire alarm control equipment. To ensure legibility of all labeled device addresses, the use of a label printing machine is recommended.</p> 

5	FA	Minor	<p>Detection devices and conduits in several areas were not properly mounted to the ceiling, such as on the ground floor of Building-1, the 1st floor of Building-2, and the 1st floor of the Production Building.</p> <p>To ensure proper installation of fire detection devices, all devices and conduits should be securely fastened to the structure with permanent fasteners and back boxes, as required by the manufacturer's instructions. Zip Ties are not allowed for securing to the ceiling.</p> 
6	FA	Minor	<p>Inadequate fire alarm notification was provided for the following areas:</p> <ul style="list-style-type: none">• Ground Floor- Washing area <p>Perform audibility testing for ALL areas with intermediate doors closed. Provide additional sounders as needed so that the fire alarm system provides 15 dBA above ambient sound levels (but not exceeding 110 dBA). In areas with high noise levels where the audibility level would exceed 110 dBA in order to achieve 15 dBA above ambient, provide visual notification devices in accordance with NFPA 72.</p> <p>The as-built drawings, battery calculations and voltage drop calculations must be revised and resubmitted to reflect any changes in the fire alarm system. Note that expected sound levels should be taken under normal operational conditions.</p>

7	FA	Minor	<p>As per the manufacturer installation manual, the maximum voltage drop in single NAC shall be 3 V, taking into account the worst-case panel output voltage (Table 33: Class B wiring Distances, page 168) but the NAC voltage drop exceeded this limit for NAC 2 and NAC 3. Note: No Circuit shall exceed the maximum current, impedance & voltage allowed by the Panel manufacturer.</p> <div></div>
8	FP	Major	<p>The fire pump’s motor nameplate was nearly unreadable, making it impossible to verify the listing authenticity and motor capacity. The factory shall provide confirmation from the listing authority (UL) that the motor is listed for fire pump service and is adequately sized.</p> <div></div>

9	FP	Minor	<p>The fire pump room did not appear to have adequate ventilation.</p> <p>Make provisions for ventilation of the fire pump room. For diesel engine driven fire pumps, ventilation shall be provided for the following functions:</p> <p>(1) To control the maximum temperature to 120°F (49°C) at the combustion air cleaner inlet with engine running at rated load.</p> <p>(2) To supply air for engine combustion.</p> <p>(3) To remove any hazardous vapors.</p> <p>(4) To supply and exhaust air as necessary for radiator cooling of the engine when required.</p> <p>The air supply ventilator shall be considered to include anything in the air supply path to the room. The total air supply path to the pump room shall not restrict the flow of the air more than 0.2 in. water column (5.1 mm water column). The air discharge ventilator shall be considered to include anything in the air discharge path from the engine to the outdoors. The air discharge ventilator shall allow sufficient air to exit the pump room. When the pump room is ventilated by a power ventilator, the reliability of the power source during a fire shall be considered [section 11.3.2, A11.3.2 NFPA 20, 2013]. Show the ventilation system details such as ventilator location, power reliability, and section on the pump room floor plan.</p>
10	SP	Major	<p>Node layout that corresponds with the hydraulic calculation does not match with actual site conditions at a few locations. Redo the hydraulic calculation and provide with the following:</p> <p>(i) Legible node layout that accurately corresponds with the hydraulic calculation.</p> <p>(ii) Supply and demand curve.</p> <p>The maximum system demand is 774.03 GPM and 7.939 bar (115.12 PSI) according to the hydraulic calculation, whereas the pressure at 750 GPM for the diesel pump was observed to be 114 PSI. The factory must ensure that the fire pumps are adequate for the system demand. The factory may increase the pipes size to adjust the system demand.</p> 

11	SP	Major	<p>Relief valve discharged piping returning water back to the supply source but did not run independently (combined with sprinkler flush line).</p> <p>Relief valve discharge piping returning water back to the supply source, such as an aboveground storage tank, shall be run independently and not be combined with the discharge from other relief valves.</p> 
12	FP	Minor	No spare/sample sprinkler was not provided for sprinkler used on system. Sample/spare sprinkler shall be kept on site & sprinkler shall match between sample & installed sprinkler.
13	FP	Minor	No test and drain connection provided for sprinkler installed in the pump room. Provide test & drain connection accordingly.

PRIORITY = MAJOR / MINOR / NOT REQUIRED

DEFICIENCY SUMMARY TABLE

System	# Major Issues	# Minor Issues	Full T&C Required	Partial T&C Required (On-Site / Desktop)
Fire Alarm	3	4	N/A	Yes (On-Site)
Sprinkler	N/A	N/A	N/A	N/A
Fire Pump and Water Supply	1	3	N/A	Yes (On-Site)
Standpipes	2	0	N/A	Yes (On-Site)

FURTHER RECOMMENDATIONS:

Fire Alarm and Detection System (FADS): Directly on-site Final Verification Inspection (FVI), after modification works and documentations/drawings.

Fire Protection System (SUPS): Directly on-site Final Verification Inspection (FVI), after modification works and documentations/drawings.

INSPECTION SUMMARY

System	Inspection Summary
Fire Alarm	The fire alarm and detection system was overall functional, three major & four minor concerns that should be addressed before recommendation of RSC approval. The contractor shall be ensured that all deficiencies are addressed properly before the next RSC Final Verification Inspection (FVI).
Sprinkler	N/A
Fire Pump and Water Supply	One major deficiencies of the fire pumps system were observed during testing & commissioning. The deficiencies include motor nameplate, ventilation, pump performance etc. All issues mentioned in this report must be addressed before this system can be considered for the next RSC Final Verification Inspection (FVI)., Contractor shall be ensured that all deficiencies are addressed properly before the next Final Verification Inspection (FVI).
Standpipes	The existing system appears to be in good working order. There does appear to be Two major issue that will need to be addressed before the next RSC Final Verification Inspection (FVI). Contractor shall ensure that all inspection deficiencies are addressed before next the next RSC Final Verification Inspection (FVI).

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Checked by: Dilip Kumar Mondal, CFPS®

Note: Buildings Covered during T&CVI:**RSC ID: 23244**

1. Building-1: 5 storied RCC & Steel (Ground to 2nd floors RCC and 3rd-4th floor steel) structure production building
2. Building-2: 2 storied steel structure production building
3. Building-3: Single story RCC utility building
4. Building-4: 2 storied (B+G+1) RCC ETP building

RSC ID: 24389

1. Six Storied Production Building (G+ 5 Storied)

Pump was performing during T&C VI on 16/10/2024:

- a. The maximum system demand is 774.03 GPM and 7.939 bar (115.12 PSI) as per hydraulic calculation.
- b. The installed diesel fire pump is 750 gpm @116 PSI (Brand: Naffco, model: NF-S-150-100, I.C Engine: Fire Driver-FD-140H), Electrical Pump is 750 gpm @116 PSI (Brand: Naffco, model: NF-S-150-100, Motor-National, Frame: 405TS). During on-site testing, the performance result was below:

Pump	Specific	Churn Pressure @ 0% flow (PSI)	Rated Pressure at 750 GPM (Pressure @ 100 % flow) (PSI)	Overloaded Pressure at 1125 GPM (150 % of rated flow of pump). (PSI)	Remarks
Diesel Engine Driven (I.C) Fire Pump	Manufacturer's Curve	132.11	116.26	94.05	The pump performance satisfactory
	Tested Value	135	115	100	
	Suction pressure	0	0	-1	
Electrical Motor Driven Fire Pump	Manufacturer's Curve	127.87	117.36	93.74	The pump performance satisfactory
	Tested Value	130	120	100	
	Suction Pressure	0	0	0	

- c. **Note:** In accordance with NFPA 25 (2014 edition), article: 8.3.7.4* Degradation in excess of 5 percent of the pressure of the initial unadjusted acceptance test curve or nameplate shall require an investigation to reveal the cause of degraded performance.

FADS was performing during T&CVI on 16/10/2024:

- A. FACP, Simplex Brand and Model No: 4100-9211 (4100ES Series) and used 4 Nos Loop (L1-107 Nos, L2-154 Nos, L3-200 Nos and L4-148 Nos) and 6 Nos NAC (N1-12 Nos, N2-11 Nos, N3-10 Nos, N4-8 Nos, N5-5 Nos, N6-9 Nos) are serving the KM Nobely Garments Ltd [RSC ID: 23244] and KM Nobely Garments Ltd (Extension Building) [RSC ID: 24389].**