FIRE SAFETY
TESTING & COMMISSIONING VERIFICATION INSPECTION GUIDANCE

These sheets have been developed by the RSC as a resource for fire safety engineers and fire safety technicians performing fire detection and fire protection systems work in RMG factories.

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T&CV INSPECTION CHECKLIST

◉ Factory: ....

◉ RSC ID: ....

◉ Inspector(s): ....

◉ Date of Inspection: ....

◉ AIR SAMPLING DETECTION SYSTEMS

		Document Review
☐ Yes	☐ No	Installation Certificate and Record of Completion is available and on-site
☐ Yes	☐ No	Approved as-built drawings are available and on-site
☐ Yes	☐ No	Product Information Sheets and Listing Information is available and on-site
☐ Yes	☐ No	Correct type of pipe and fittings are provided
☐ Yes	☐ No	Installation manual for control equipment is available
☐ Yes	☐ No	....
☐ Yes	☐ No	....
		Pre-Test Activities
☐ Yes	☐ No	Factory staff has informed workers that testing activities will be conducted
☐ Yes	☐ No	Contractor has proper testing tools and equipment
☐ Yes	☐ No	System has no ground faults\troubles\supervisory\or alarm signals present
		Inspections
		Control Equipment Visual Inspections
☐ Yes	☐ No	Control equipment panel(s) are installed within spaces meeting the manufacturers operational requirements for temperature and humidity
☐ Yes	☐ No	Control equipment panel(s) are accessible and not obstructed
☐ Yes	☐ No	Control equipment panel(s) are normal condition prior to testing If no, reason(s): ....
☐ Yes	☐ No	Alarm control panel indicates no supervisory or trouble conditions If yes, reason(s): ....
☐ Yes	☐ No	Dedicated power is provided to the Alarm Control Panel
☐ Yes	☐ No	Circuit breaker or power-disconnects are correctly labeled
☐ Yes	☐ No	Correct size batteries are provided for FACP and Power Supplies
☐ Yes	☐ No	Batteries have manufacturing date and the date of installation markings
☐ Yes	☐ No	Control equipment is monitored by Building Fire Alarm System
☐ Yes	☐ No	....
☐ Yes	☐ No	....

Control Equipment Inspection Notes:

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			Field Device Visual Inspections
☐ Yes	☐ No	☐ N/A	Pipe and fittings used for air-sampling pipe network are listed by manufacturer
☐ Yes	☐ No	☐ N/A	Pipe network is complete and includes end-caps
☐ Yes	☐ No	☐ N/A	Pipe network is properly secured and protected from physical damage
☐ Yes	☐ No	☐ N/A	Sampling ports are spaced correctly and match approved plans
☐ Yes	☐ No	☐ N/A	Sampling ports are correctly identified
☐ Yes	☐ No	☐ N/A	Set points for Alarm are provided (1.5- 2.5% Obscuration per foot)
☐ Yes	☐ No	☐ N/A	Set points for Pre-Alarm are provided (0.0015-0.015% Obscuration per foot)
☐ Yes	☐ No	☐ N/A	Notification appliances are installed as shown on the approved plans
☐ Yes	☐ No	☐ N/A	Notification appliances are not obstructed and secured in place
☐ Yes	☐ No	☐ N/A	Audible notification is provided for all occupied areas served by system
☐ Yes	☐ No	☐ N/A	Door Releasing service is provided for all fire doors
☐ Yes	☐ No	☐ N/A	Door releasing hardware is installed correctly and is complete
☐ Yes	☐ No	☐ N/A	Elevator Recall is provided
☐ Yes	☐ No	☐ N/A	Exhaust Fan shut down is provided
☐ Yes	☐ No	☐ N/A	....
☐ Yes	☐ No	☐ N/A	....

Field Device Inspection Notes:

			Functional Testing
☐ Yes	☐ No	☐ N/A	Control equipment confirmed for primary and secondary power loss supervision
☐ Yes	☐ No	☐ N/A	Networked panels are correctly supervised
☐ Yes	☐ No	☐ N/A	All visual displays and annunciator lamps are functional
☐ Yes	☐ No	☐ N/A	Transport time from the farthest sampling point is within 120 seconds
☐ Yes	☐ No	☐ N/A	Alarm conditions report correctly to Bldg. Fire Alarm System
☐ Yes	☐ No	☐ N/A	Supervisory conditions report correctly to Bldg. Fire Alarm System
☐ Yes	☐ No	☐ N/A	Trouble conditions report correctly to Bldg. Fire Alarm System
☐ Yes	☐ No	☐ N/A	....
☐ Yes	☐ No	☐ N/A	....
☐ Yes	☐ No	☐ N/A	....

Functional Testing Notes:

			Post-Test Activities
☐ Yes	☐ No	☐ N/A	Factory staff has informed workers that testing activities are complete
☐ Yes	☐ No	☐ N/A	System has no ground faults\troubles\supervisory\or alarm signals present at the end of testing
☐ Yes	☐ No	☐ N/A	Fire Alarm System is functioning in accordance with approved design documents

Functional Testing Notes:

T&CV INSPECTION CHECKLIST

◉ Factory: .... ◉ RSC ID: ....

◉ Inspector(s): .... ◉ Date of Inspection: ....

◉ FIRE ALARM SYSTEMS

Document Review		
☐ Yes	☐ No	Installation Certificate and Record of Completion is available and on-site
☐ Yes	☐ No	Approved as-built drawings are available and on-site
☐ Yes	☐ No	Product Information Sheets and Listing Information is available and on-site
☐ Yes	☐ No	Does all the necessary equipment have third party listing certificates consistent with products on-site
☐ Yes	☐ No	Has battery calculation & voltage drop calculation been provided as per as-built drawing
☐ Yes	☐ No	Correct type of wire and cable is provided
☐ Yes	☐ No	Installation manual for control equipment is available
☐ Yes	☐ No	....
☐ Yes	☐ No	....
Pre-Test Activities		
☐ Yes	☐ No	Factory staff has informed workers that testing activities will be conducted
☐ Yes	☐ No	Contractor has proper testing tools and equipment
☐ Yes	☐ No	System has no ground faults\troubles\supervisory\or alarm signals present
Inspections		
Control Equipment Visual Inspections		
☐ Yes	☐ No	Control equipment panel(s) are installed within spaces meeting the manufacturers operational requirements for temperature and humidity
☐ Yes	☐ No	Control equipment panel(s) are accessible and not obstructed
☐ Yes	☐ No	Control equipment panel(s) are normal condition prior to testing If no, reason(s): ....
☐ Yes	☐ No	Fire alarm control panel indicates no supervisory or trouble conditions If yes, reason(s): ....
☐ Yes	☐ No	Dedicated power is provided to the FACP
☐ Yes	☐ No	Circuit breaker or power-disconnects are correctly labeled
☐ Yes	☐ No	Correct size batteries are provided for FACP and Power Supplies
☐ Yes	☐ No	Batteries have manufacturing date and the date of installation markings
☐ Yes	☐ No	Has wiring of control equipment been completed as per manufacturer's instruction
☐ Yes	☐ No	Wiring entering and leaving control equipment is protected from physical damage and terminated correctly
☐ Yes	☐ No	End of Line Resistors are located in correct locations for supervised circuits
☐ Yes	☐ No	Remote control-panels and equipment are properly supervised
☐ Yes	☐ No	....
☐ Yes	☐ No	....

Control Equipment Inspection Notes:

Field Device Visual Inspections

☐ Yes	☐ No	☐ N/A	Device locations match approved as-builts
☐ Yes	☐ No	☐ N/A	Device quantities match approved as-builts
☐ Yes	☐ No	☐ N/A	Device Addresses are clearly marked for all initiating devices
☐ Yes	☐ No	☐ N/A	Wiring at devices is not exposed or unprotected
☐ Yes	☐ No	☐ N/A	Manual pull boxes are visible in the path of egress and accessible
☐ Yes	☐ No	☐ N/A	Manual pull boxes are not obstructed or subject to physical damage
☐ Yes	☐ No	☐ N/A	Detector spacing and locations are compliant with approved plans
☐ Yes	☐ No	☐ N/A	Detectors are not obstructed and are secured in place
☐ Yes	☐ No	☐ N/A	Detectors are not located in exterior locations or environments that are beyond the manufacturers operating ranges for temperature and humidity or will produce nuisance alarms
☐ Yes	☐ No	☐ N/A	Notification appliances are installed as shown on the approved plans
☐ Yes	☐ No	☐ N/A	Notification appliances are not obstructed and secured in place
☐ Yes	☐ No	☐ N/A	Audible notification is provided for all occupied areas
☐ Yes	☐ No	☐ N/A	Supervision of all sprinkler control valves is provided`
☐ Yes	☐ No	☐ N/A	Beam detectors are installed in accessible locations
☐ Yes	☐ No	☐ N/A	Beam detectors have remote test and reset switches – resetting the detector does not require removal of power or special tools
☐ Yes	☐ No	☐ N/A	Door Releasing service is provided for all fire doors
☐ Yes	☐ No	☐ N/A	Door releasing hardware is installed correctly and is complete
☐ Yes	☐ No	☐ N/A	Elevator Recall is provided
☐ Yes	☐ No	☐ N/A	Exhaust Fan shut down is provided
☐ Yes	☐ No	☐ N/A	………………………………………………………………………………………………………
☐ Yes	☐ No	☐ N/A	………………………………………………………………………………………………………

Field Device Inspection Notes:

Functional Testing

☐ Yes	☐ No	☐ N/A	Control equipment confirmed for primary and secondary power loss supervision
☐ Yes	☐ No	☐ N/A	Networked panels are correctly supervised
☐ Yes	☐ No	☐ N/A	All visual displays and annunciator lamps are functional
☐ Yes	☐ No	☐ N/A	Correct locations of EOL Resistors are verified for supervised circuits
☐ Yes	☐ No	☐ N/A	Devices tested report correct address at panel for activated or missing devices
☐ Yes	☐ No	☐ N/A	Devices tested for functionality with open SLC circuits
☐ Yes	☐ No	☐ N/A	Voltage drop measured for NAC circuits
☐ Yes	☐ No	☐ N/A	Evacuation message or signaling is understandable
☐ Yes	☐ No	☐ N/A	Audibility for occupied areas is at least 15 dBA above ambient
☐ Yes	☐ No	☐ N/A	Visual notification is synchronized when more than one device is in the same field of view
☐ Yes	☐ No	☐ N/A	Music or PA systems are shut down upon activation of alarm system
☐ Yes	☐ No	☐ N/A	Elevators recall on correct devices
☐ Yes	☐ No	☐ N/A	Exhaust Fans shut down upon activation of fire alarm
☐ Yes	☐ No	☐ N/A	………………………………………………………………………………………………………
☐ Yes	☐ No	☐ N/A	………………………………………………………………………………………………………
☐ Yes	☐ No	☐ N/A	………………………………………………………………………………………………………

Functional Testing Notes:

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Post-Test Activities		
☐ Yes ☐ No ☐ N/A	Factory staff has informed workers that testing activities are complete	
☐ Yes ☐ No ☐ N/A	System has no ground faults\troubles\supervisory\or alarm signals present at the end of testing	
☐ Yes ☐ No	Fire Alarm System is functioning in accordance with approved design documents	
If no, reason(s):		

◉ Factory: .... ◉ RSC ID: ....

◉ Inspector(s): .... ◉ Date of Inspection: ....

◉ FIRE PUMP SYSTEM

			Document Review
☐ Yes	☐ No	☐ N/A	Installers Fire Pump Test Report is available and on-site
☐ Yes	☐ No	☐ N/A	As-built drawings are available and on-site
☐ Yes	☐ No	☐ N/A	Equipment information sheets and Listing information is available and on-site
☐ Yes	☐ No	☐ N/A	Does all the necessary equipment have third party listing certificates consistent with products on-site
☐ Yes	☐ No	☐ N/A	Manufacturer's fire pump test curve included in equipment information, and on site Electric Pump rated fire flow: .... gpm at ....psi Diesel Pump rated fire flow: .... gpm at ....psi
			Pre-Test Activities
☐ Yes	☐ No	☐ N/A	Factory staff has informed workers that testing activities will be conducted
☐ Yes	☐ No	☐ N/A	Contractor has proper testing tools and equipment
☐ Yes	☐ No	☐ N/A	Connected Fire Alarm System has no ground faults\troubles\supervisory\or alarm signals present
			Inspections
			Visual Inspections
☐ Yes	☐ No	☐ N/A	Does diesel fire pump room have adequate ventilation
☐ Yes	☐ No	☐ N/A	Does suction from tank have strainer
☐ Yes	☐ No	☐ N/A	Pump Controllers in Auto and free of trouble signals
☐ Yes	☐ No	☐ N/A	Battery terminals free of corrosion
☐ Yes	☐ No	☐ N/A	Are fuel lines steel pipe
☐ Yes	☐ No	☐ N/A	Is fuel tank properly sized (1 gallon per HP) Tank Size ....
☐ Yes	☐ No	☐ N/A	All valves are supervised and open or closed as required
☐ Yes	☐ No	☐ N/A	Diesel Fuel Tank size .... / Level:................. (½, ¾, 1)
☐ Yes	☐ No	☐ N/A	Water Tank size .... / Level:..................... (½, ¾, 1)
☐ Yes	☐ No	☐ N/A	Pump(s) provided with positive suction head and clean water supply
☐ Yes	☐ No	☐ N/A	Is vortex plate installed in tank suction

Visual Inspection Notes:

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			Functional testing (Typical for each floor/zone)
☐ Yes	☐ No	☐ N/A	Jockey pump start pressure……………….. psi (slowly open a valve to lower pressure)
☐ Yes	☐ No	☐ N/A	Electric fire pump start pressure……………….psi (continue to slowly open a valve to lower pressure) Maximum flow :……………. gpm at:……………….psi
☐ Yes	☐ No	☐ N/A	If emergency power is provided: ◉ When in normal power, start pump then shut down normal power and test generator auto start and switch to E-power ◉ When on E-power start pump stop pump then start when E-power running
☐ Yes	☐ No	☐ N/A	Diesel fire pump start pressure……………….psi (continue to slowly open a valve to lower pressure) Maximum flow:……………. gpm at:……………….psi
☐ Yes	☐ No	☐ N/A	Fire pumps should be tested at 150% of flow if water supply is available. Otherwise fire pump should be tested at the greater of the sprinkler system demand, or standpipe system or 100% of rated flow and pressure.
☐ Yes	☐ No	☐ N/A	Fire pump manual stop or automatic stop (Minimum run times: 10 minutes for electric. 30 minutes for diesel)
☐ Yes	☐ No	☐ N/A	Manual stop fire pumps
☐ Yes	☐ No	☐ N/A	Start fire pumps manually Stop fire pumps and confirm controllers in auto and free of troubles signals Diesel Fuel Tank size ……………. / Level………………. (½, ¾, 1) Water Tank size ……………. / Level …………… (½, ¾, 1) Measure water tank fill rate if able ………. gpm
Inspection Notes:			

◉ Factory: .... ◉ RSC ID: ....

◉ Inspector(s): .... ◉ Date of Inspection: ....

◉ FIRE SPRINKLER SYSTEM

			Document Review
☐ Yes	☐ No	☐ N/A	Installation Certificate and Record of Completion is available and on-site
☐ Yes	☐ No	☐ N/A	Approved as-built drawings are available and on-site
☐ Yes	☐ No	☐ N/A	Product Information Sheets and Listing Information is available and on-site
☐ Yes	☐ No	☐ N/A	Does all the necessary equipment have third party listing certificates consistent with products on-site
			Pre-Test Activities
☐ Yes	☐ No	☐ N/A	Factory staff has informed workers that testing activities will be conducted
☐ Yes	☐ No	☐ N/A	Contractor has proper testing tools and equipment
			Inspections
			Control Equipment Visual Inspections
☐ Yes	☐ No	☐ N/A	No visible evidence of external leakage from piping and joints
☐ Yes	☐ No	☐ N/A	Floor Control Valve Assembly: ◉ Control valve open ◉ Pressure gauge present: Static pressure: .... ◉ Check valve present, if shown on drawings ◉ Inspector's test and drain connection present
☐ Yes	☐ No	☐ N/A	Is typical ceiling Obstructed or Unobstructed (Unobstructed: NFPA 13, Section, 3.7: if structural members are greater than 7 ½-feet apart or if less than 7 ½-feet apart beams and girders less than 4-inches deep).
☐ Yes	☐ No	☐ N/A	Sprinkler installation and piping in accordance with drawings including sprinkler spacing and sizing
☐ Yes	☐ No	☐ N/A	Sprinkler support/hangars: ◉ Is each pipe length supported and not welded to support? ◉ Is any other equipment supported from sprinkler pipe?
☐ Yes	☐ No	☐ N/A	If water is from a pond/lake/river or other open top raw source, are pendant sprinklers below ceilings on a return bend
☐ Yes	☐ No	☐ N/A	If sprinkler below ceiling and pressure exceed 100 psi, are sprinklers retrained from upward movement
☐ Yes	☐ No	☐ N/A	Sprinklers free of paint/loading/dust
☐ Yes	☐ No	☐ N/A	Sprinklers in proper orientation
☐ Yes	☐ No	☐ N/A	Are all obstructions (storage and partitions) at least 18-inches below deflector (NFPA 13: 8.5.5.3)
			Control Equipment Inspection Notes:
			Functional testing (Typical for each floor/zone)
☐ Yes	☐ No	☐ N/A	Closure of Floor control valve provides trouble alarm
☐ Yes	☐ No	☐ N/A	Operation of inspector's test valve provides alarm between 30 and 150 seconds of opening. (Residual pressure ....)
			Functional Testing Notes:

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T&CV INSPECTION CHECKLIST

◉ Factory: .... ◉ RSC ID: ....

◉ Inspector(s): .... ◉ Date of Inspection: ....

◉ STANDPIPE SYSTEMS

			Document Review
☐ Yes	☐ No	☐ N/A	Installation Certificate and Record of Completion is available and on-site
☐ Yes	☐ No	☐ N/A	Approved as-built drawings are available and on-site
☐ Yes	☐ No	☐ N/A	Product Information Sheets and Listing Information is available and on-site
☐ Yes	☐ No	☐ N/A	Does all the necessary equipment have third party listing certificates consistent with products on –site
			Pre-Test Activities
☐ Yes	☐ No	☐ N/A	Factory staff has informed workers that testing activities will be conducted
☐ Yes	☐ No	☐ N/A	Contractor has proper testing tools and equipment
			Inspections
			Control Equipment Visual Inspections
☐ Yes	☐ No	☐ N/A	Are all control valves open (bottom of riser)
☐ Yes	☐ No	☐ N/A	Are there control valves on the fire hose valve piping; if so is the control valve electronically supervised
☐ Yes	☐ No	☐ N/A	Fire hose valves located in stairs and unobstructed
☐ Yes	☐ No	☐ N/A	Fire hose valves do not obstruct stairs
☐ Yes	☐ No	☐ N/A	Standpipes properly supported and not welded to supports
☐ Yes	☐ No	☐ N/A	Condition of hose new/without tears or rot
☐ Yes	☐ No	☐ N/A	Fire department hose valve gasket in place
☐ Yes	☐ No	☐ N/A	Pressure gauge present at top of standpipe riser:................ Static Pressure
			Functional testing
☐ Yes	☐ No	☐ N/A	Operate all hose valves for full range of motion (make sure all caps are in place and don't leak)
☐ Yes	☐ No	☐ N/A	Flow top of riser hose valve, for full flow
☐ Yes	☐ No	☐ N/A	Pressure gauge at top or standpipe riser:...........................Residual Pressure when flowing

Inspection Notes:

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