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Fire Sprinkler Plan Submittal Form

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone: (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Fire Sprinkler System Plan Review, four (4) copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application.

1) **Submit detailed shop drawings which shall:**
   - ☐ Be drawn to scale.
   - ☐ Include the business name and address.
   - ☐ Include the sprinkler company name and address.
   - ☐ Show underground main and feeder details.
   - ☐ Location of tap into main.
   - ☐ Location of flow test hydrants.
   - ☐ Indicate flow and gauged hydrants.
   - ☐ Indicate all pipe sizes, spacing between branch lines and sprinkler locations.
   - ☐ Identify the make, model, temperature, and number of each head used in the design.
   - ☐ Include a symbol legend defining the devices.
   - ☐ Show the riser detail.
   - ☐ Show the location, size and construction of concealed spaces.
   - ☐ Provide full height cross section including ceiling construction detail.
   - ☐ Identify the location of monitoring equipment for water flow, supervisory and trouble conditions.
   - ☐ Design details in accordance with the applicable referenced standard (NFPA 13, 13R, 13D) as referenced by the 2018 International Fire Code as amended by the City of Crystal Lake.

2) **Provide manufacturer's catalog cut sheets on all installed materials and equipment:**
   - ☐ All applicable item(s) shall be highlighted.
   - ☐ Verify all materials used are installed in accordance with their listing and manufacturer's recommendations.

3) **Provide results of a current flow test (dated within 12 months) indicating the location and date of the test with the names of the company or personnel conducting the test. Contact the City of Crystal Lake Public Works Department at (815) 356-3614 to schedule the flow test.**

4) **Available water shall exceed the system demand by a minimum of 5 psi.**

5) **Design calculations, sprinkler summary sheet and water supply graphs indicating the discharge requirements of each system.**

6) **Provide 3 different hydraulic calculations to determine the most hydraulically demanding area.**

7) **Each build out in a multi-tenant building shall require a separate permit and submittal for changes to the sprinkler system including a letter of authorization to alter the system from the property owner.**
8) **Description and locations of all rooms and uses in the building, along with occupancy, commodity classification, and storage arrangements that include storage height shall be shown on the plan.**
9) **A reduced pressure zone (RPZ) backflow prevention assembly is required.**

This form must be included with the sprinkler submittal with all information completed.

Company Name **Company phone number**

Contact name and signature **Contact phone number**

Standpipe Plan Review Submittals

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Fire Standpipe System Plan Review, four (4) copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application.

1) **Standpipe systems not combined with automatic sprinkler systems must obtain a separate permit as required by the 2018 IBC, 2018 IFC Section 905 and Crystal Lake Ordinances.**

2) **Submit detailed shop drawings which shall:**
   - Be drawn to scale.
   - Include the business name and address.
   - Include the sprinkler company name and address.
   - Include a standpipe hose connection on the roof or in the stairway with access to the roof, when the roof slope is 33.3% or less.
   - Include an additional hose connection at the highest hydraulically remote standpipe for testing purposes.
   - Show building locations, hose connections, supervised control valves, and cabinets if used.
   - Show all hose thread connections which must be compatible with the Crystal Fire Department hose.

2) **Design calculations and water supply graphs indicating the discharge requirements**
   - Minimum of 500 gpm for the most remote standpipe.
   - 250 gpm for each additional standpipe total not to exceed 1250 gpm or 1000 gpm for combination standpipe/sprinkler systems.

3) **Provide manufacturer's catalog cut sheets on all installed materials and equipment**
   - All applicable item(s) shall be highlighted.
   - Verify all materials used are installed in accordance with their listing and manufacturers recommendations.

4) **Standpipe systems are allowed to be combined with automatic sprinkler systems with the exception of all warehouse storage areas exceeding 30,000 sq ft with rack storage greater than 12 feet.**

5) **The City of Crystal Lake does not require or permit pressure reducing valves on the hose connections.**

6) **Dry standpipes shall not be installed. Exception: where subject to freezing and in accordance with NFPA 14.**
7) **Pressure requirements for type I and III standpipes shall be 100 psi to the most remote 2 ½ inch fire hose valve.**

Any submittal requirements not specifically addressed above must be in full compliance with the 2018 IBC, 2018 IFC, NFPA 14, and City of Crystal Lake Ordinances.

This form must be included with the submittal with all information completed.

Company Name **Company Phone Number**

Contact Name **Contact Phone Number**

Fire Pump Plan Submittal Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Fire Pump Plan Review, four (4) copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application.

1) **Submit detailed shop drawings which shall:**
   - ☐ Be drawn to scale.
   - ☐ Include the business name and address.
   - ☐ Include sprinkler company name and address.
   - ☐ Show fire pump location within the building.
   - ☐ Identify the pump mounting.
   - ☐ Identify the pump driver.
   - ☐ Identify the pump controller.
   - ☐ Show piping detail and all control valves.
   - ☐ Location of the jockey pump.
   - ☐ Location of all installed devices.
   - ☐ Location of underground main and feeder details.
   - ☐ Location of tap into main.
   - ☐ Location of flow test hydrants.
   - ☐ Indicate flow and gauged hydrants.
2) **Provide electric plans for:**
   - ☐ The pump.
   - ☐ The controller.
   - ☐ The jockey pump.
   - ☐ Other installed electric device for approval and permit.
3) **Provide results of a current flow test (dated within 12 months) indicating the location and date of the test and the names of the company or personnel conducting the test. Contact the City of Crystal Lake Public Works Department at (815) 356-3614 to schedule the flow test.**
4) **Provide manufacturer's catalog cut sheets on all installed materials and equipment:**
   - ☐ All applicable item(s) shall be highlighted.
   - ☐ Verify all materials used are installed in accordance with their listing and manufacturers recommendations.
5) **If fire pump is connected to the City water supply, the fire pump suction pressure shall be greater than 25 psi at 150% of the fire pump rating.**

6) **For diesel driven fire pumps, detailed plans shall be submitted for approval on the engine and for the fuel supply system.**
   - ☐ Detailed plans of exhaust and ventilation must also be submitted to the Building Department for approval.
   - ☐ Supply documentation verifying the engine is listed for fire pump use.

7) **Fire pump test headers shall be piped on the exterior of the building. Interior test headers are not permitted.**

8) **The fire pump shall be located in a dedicated fire protection system room (minimum of 6' x 8') and requires an exterior door for Fire Department access. Door shall be labeled, "Sprinkler Room" and "FACP" if appropriate. The room shall be 2 hour rated with the exception if the building is fully protected with an automatic sprinkler system in compliance with NFPA 13 the room rating may be reduced to 1 hour.**

Any submittal requirements not specifically addressed above must be in full compliance with the 2018 IFC, NFPA 20, NFPA 25, NFPA 13, and City of Crystal Lake Ordinances.

This form must be included with the submittal with all information completed.

Company Name **Company Phone Number**

Contact Name **Contact Phone Number**

Fire Alarm Plan Submittal Form

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone: (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Fire Alarm System Plan Review, digital copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application. Utilize the community development portal to plans.

1) **Submit detailed shop drawings which shall:**
   - ☐ Be drawn to scale.
   - ☐ Include the business name and address.
   - ☐ Include the alarm company name and address.
   - ☐ Include a legend of symbols.
   - ☐ Include a point-to-point wire diagram indicating the number of wires and gauge for each wire run.
   - ☐ Include a riser diagram for the system, if applicable.
   - ☐ Include overall dimensions of the building on each floor, rooms, uses and storage arrangements for special applications.
   - ☐ Provide a point address for each initiating device.
   - ☐ Identify all rooms or areas.
   - ☐ Identify duct smoke detector location and details per IMC 2006.
   - ☐ Show locations of the duct detector test modules.
   - ☐ Show candela rating and configuration for each strobe.
   - ☐ Show temperature rating and type of each heat detector.
   - ☐ Show the Matrix of Operations.

2) **Monitoring shall be accomplished by Crystal Lake Wireless Alarm Network (CLWAN) to the Crystal Lake Fire Rescue Department's dispatch center. Contact the Fire Prevention Bureau for more information.**

3) **Provide manufacturer's catalog cut sheets on all installed materials and equipment.**
   - ☐ All applicable item(s) shall be highlighted.
   - ☐ Verify all materials used are installed in accordance with their listing and manufacturer's recommendations.

4) **Provide the following calculations:**
   - ☐ Provide battery calculations and indicate the ampere hour of batteries being installed.
   - ☐ Provide voltage drop calculations for each notification circuit.

5) Miscellaneous required documentation:

- Alarm Company must submit documentation of field modifications to the system which differ from the approved documents. It is required that the Alarm Contractor receive approval prior to making field modifications.
- Plans that are submitted for fire alarm alterations or additions on a tenant build out require a letter from the property owner indicating permission to alter the system.
- Submit a copy of State license.

This form must be included in the submittal with all information completed.

Company Name **Company phone number**

Contact Name and signature **Contact phone number**

Kitchen Hood Wet Chemical Submittal

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Kitchen Hood Wet Chemical Plan Review, digital copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application.

1) **Submit detailed shop drawings which shall:**
   - ☐ Be drawn to scale.
   - ☐ Include the business name and address.
   - ☐ Include the submitting company's name and address.
   - ☐ Show the view of the kitchen, hood, tank, and remote pull station location(s) (no closer than 10 feet and farther than 20 feet).
   - ☐ Show the view of the appliance locations, dimensions and types.
   - ☐ Identify the type of nozzles, mounting height, and aiming point.
   - ☐ Show the tank size and flow point count.
2) **Provide manufacturer's catalog cut sheets on all installed materials and equipment:**
   - ☐ All applicable item(s) shall be highlighted.
   - ☐ Verify all materials are installed in accordance with their listing and manufacturer's recommendation.
3) **The kitchen hood mechanicals will be reviewed by the Crystal Lake Building Department and the Crystal Lake Fire Rescue Department. Contact the Crystal Lake Building Department at (815) 356-3605 for mechanical submittal requirements.**

Any submittal requirements not specifically addressed above must be in full compliance with NFPA 17A, NFPA 96, and City of Crystal Lake Ordinances.

This form must be included with the submittal with all information completed.

Company Name **Company Phone Number**

Contact Name **Contact Phone Number**

Clean Agent System Plan Submittal

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

In order to perform a thorough Clean Agent System Plan Review, digital copies of the following specifications, drawings and details shall be submitted along with a completed City of Crystal Lake permit application.

1) Submit detailed shop drawings which shall:

- ☐ Be drawn to scale.
- ☐ Include the business name and address.
- ☐ Include the submitting company's name and address.
- ☐ Show room construction details.
- ☐ Show ceiling heights.
- ☐ Show dimensions of the hazard area.
- ☐ Identify the locations of all equipment to be installed.
- ☐ Identify the operation of HVAC shut down.
- ☐ Show the fire damper control and operation.
- ☐ Show the door closer operation.
- ☐ Show the electrical equipment shut down.
- ☐ Show the key plan for the area of the work in the building.
- ☐ Identify the audio/visual alarm devices provided for pre-discharge and system discharge.
- ☐ Provide location and examples of all required signs.

2) **Additional requirements**

- ☐ Flow calculations shall be submitted. Pre-engineered systems do not require flow calculations when installed within their listing limitations.
- ☐ Concentration hold time shall be no less than 6 minutes.
- ☐ Obtain a fire alarm permit (see Fire Alarm Plan Submittal).
- ☐ Provide information on the type of hazard being protected.
- ☐ Provide catalog cut sheets on all the equipment to be used.
- ☐ Reduced detection spacing is required in high air movement rooms and below floor areas such as computer rooms.
- ☐ A time delay of 20–30 seconds shall be permitted provided there is no increase to threat of life.

3) **A manual means of operation is required**

- ☐ A manual pull station shall be located at the exit door to a maximum of 4 feet in height.
- ☐ Additional pull station shall be located at the storage containers if located in a different room.

This form must be included in the submittal with all information completed.

Company Name **Company phone number**

Contact name and signature **Contact phone number**

Final Occupancy Check List

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final occupancy approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) Fire Protection:

- ☐ All required fire protection systems **must** be completed, tested, approved, and permit closed.
- ☐ Verify fire extinguishers have been properly located, secured and with proper certification tags. Travel distance shall not exceed 75 feet in ordinary occupancies and 30 feet if flammable liquids are used or stored.
- ☐ All occupancies with boilers that are required to be certified must have Illinois Office of State Fire Marshal inspection document in place.
- ☐ Verify fire alarm devices, sprinkler heads, or fire extinguishers have not been blocked by furniture, décor, fixtures, etc.

2) Exiting:

- ☐ Verify all exit pathways have been maintained per plan.
- ☐ Verify all installed door hardware is passage type locksets not requiring a key or special knowledge for egress.
- ☐ Verify that exit discharge pathways are completed and not blocked by items such as dumpster, fencing, debris, etc.
- ☐ Verify all fire doors are self closing and positive latching.

3) Emergency Lighting:

- ☐ Emergency lighting is properly located to provide proper lighting for exit discharge.
- ☐ Circuit breaker is locked when required.
- ☐ Verify emergency lights have not been blocked by furniture, décor, fixtures, etc.

4) Required signage:

- ☐ Exit signs are located properly to direct occupants to exit discharge.
- ☐ Exit signs function on AC power.
- ☐ Exit signs battery power.
- ☐ Exit signs have not been blocked by furniture, décor, fixtures, etc.
- ☐ Verify occupant load signs have been posted at the entrance doors of rooms used for assembly and for occupancies used for assembly.
- ☐ Address must be posted a minimum of 4 inches in size with contrasting colors and be clearly visible from the street.
- ☐ Multi-tenant buildings require each unit to post unit designation (alpha or numeric) at all exterior doors.

- ☐ All interior room doors shall have proper signs indicating special use such as electric room, mechanical room, utility room, restroom, etc.
- ☐ All closets used to store medical gas must have door marked “Medical Gas” and post appropriate NFPA 704 placard.
- ☐ Occupancies such as auto shops which have rooms storing bulk flammable or combustible liquids must have proper NFPA 704 placard on door and on tanks.
- ☐ All evacuation plan signs must be posted in occupancies required by code.
- ☐ All stairways require signs in place indicating floor and stairway designation. Buildings with stairs serving 5 or more floors must comply with the State of Illinois stairway sign codes.
- ☐ All areas of refuge must be properly posted and shall have required lighted sign in place. The sign shall function for AC power and battery power.
- ☐ All areas or refuge two way communications will be verified for function.

5) Miscellaneous:

- ☐ Knox Box is properly secured in the proper location.
- ☐ All applicable keys are provided for the Knox Box.
- ☐ Verify the Fire Department connection and the fire hydrants are clear from all debris and can be accessed.
- ☐ Emergency contact form is completed.

Any items not specifically addressed above shall be in full compliance with the 2018 IBC, 2018 IFC, and all City of Crystal Lake Ordinances.

Fire Sprinkler Inspection Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) **Water Main Flush**
   - ☐ Contact the City of Crystal Lake Building and Public Works Departments to schedule water main flush. **Sprinkler equipment is not permitted to be connected prior to the flush.**

2) **Above Ceiling Inspection**
   - ☐ The entire ceiling must be open.
   - ☐ Inspection of piping and hangers for proper installation.
   - ☐ Verification of proper coverage and obstructions.
   - ☐ Verification that the system is installed as approved plans.

3) **Hydrostatic Test** (can be completed with the above ceiling inspection)
   - ☐ The entire ceiling must be open.
   - ☐ Hydrostatic testing must be witnessed at 200 psi for 2 hours on all sprinkler systems.
   - ☐ Pressure drain down must be witnessed at the completion of the hydro test.

4) **Dry system testing**
   - ☐ In addition to the hydrostatic test a 24 hour air test at 40 psi is required to be witnessed including pre-action systems.
   - ☐ A full trip test is required to be witnessed and timed. The timing shall be conducted using the most remote inspector's test.
   - ☐ The completion of the air test certification papers is required at the end of the test.

5) **Flow test.**
   - ☐ Main drain test must be witnessed and all the pressures recorded.
   - ☐ All flow switches must be tested for time retard (approximate time of 45 seconds)

6) **Final approval**
   - ☐ All risers must have hydraulic design calculation placards in place.
   - ☐ Backflow certification report is attached to the fire sprinkler system.
   - ☐ Sign in place for inspector test valves.
   - ☐ Sign in place for drain(s).
   - ☐ Sign in place for control valves.

- Sprinkler room shall have a low temperature alarm (Supervisory) that sends alarm at 40 degrees.
- Multiple riser systems are required to have each riser marked with the area they protect and must correspond with the fire alarm description.
- All as built plans have been submitted and approved by the Fire Prevention Bureau.
- The completion of the hydrostatic test certification papers is required at the end of the test.

7) Cabinet shall be mounted in the riser room and be no less than 14 inches high by 14 inches wide by 4 ½ inches deep. The following information shall be provided in the cabinet.

- A copy of the plans.
- Device specification sheets.
- Hydraulic calculations.
- One USB drive with programing on the USB drive – Program code included.
- A Secure location for the USB drive

Any testing or inspections required not specifically addressed above must be in full compliance with NFPA 13, NFPA 25, 2018 IFC, and the City of Crystal Lake Ordinances.

Standpipe Inspection Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) Hydrostatic Test

- All installed standpipe piping and devices must be inspected prior to being concealed to verify proper piping, hangers, and devices have been installed in compliance with the codes and per approved plans.
- A hydrostatic test must be complete no less than 2 hours at 200 psi and witnessed by the Fire Prevention Bureau.
- An air test will be required in compliance with NFPA 14 and NFPA 25.
- All certification papers shall be provided and completed at the conclusion of testing.

2) Final approval

- For non-combination standpipe system the fire department connection shall have a 5 inch Storz hose connection with a 30 degree elbow located a maximum of 42 inches in height above ground. The connection sign shall read as “Standpipe”.
- Access to the fire department shall be easily accessible and visible.
- The ball drip valve is located between the fire department connection and the check valve in the lowest point of the piping.
- Each installed standpipe shall be flushed and a flow test conducted at the most remote outlets to assure 500 gpm at 100 psi is available.
- Any alterations from the original approved plans require as built plans to be submitted for review and approval.
- For final approval a complete set of shop drawings, hydraulic calculations, and catalog cut sheets shall be provided for the building and located in a mounted cabinet 14” high by 14” wide by 4 ½ inches in deep within the riser room.

Any inspections or testing not specifically addressed above must be in full compliance with the 2018 IBC, 2018 IFC, NFPA 14, NFPA 25, and City of Crystal Lake Ordinances.

Fire Pump Test Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) Water supply

- ☐ The fire pump piping shall be hydrostatically tested.
- ☐ Verify adequate water supply with the fire pump running at capacity. Intake side of the pump shall not drop below 25 psi.
- ☐ The fire pump shall be capable of pumping 150% of the rated capacity.
- ☐ The fire pump test shall be witnessed by the Fire Department and the manufacturer's pump test curve shall be on site for the test.

2) Pump Test

- ☐ Ten (10) automatic and ten (10) manual starts and stops of the fire pump are required. The pump shall be in operation no less than 1 hour total time during all the foregoing tests.
- ☐ The items required to be documented at the test are net pump pressures, rate of water flow, volts and amps of motors, speed (RPM), and jockey pump / fire pump pressure settings.
- ☐ All control valves shall be tested for alarm supervision.
- ☐ The fire pump shall not be timed out for automatic shut down.

3) Electric Driven Pumps

- ☐ Verify under electric motor starting conditions, the voltage to the controller shall not drop more than 15% below normal and at 115% of the full load the voltage drop at the motor terminal shall not exceed 5%.
- ☐ The alarms shall be tested for water flow, pump running, phase reversal, and loss of line power.

4) Diesel Driven Pumps

- ☐ Verify on engine driven fire pumps the governor regulated engine speed is 10% plus or minus between shut off and maximum load conditions of pump.
- ☐ Verify engine shut down device is set at no greater than 20% of the engine rated speed and the manual reset functions.
- ☐ Verify tachometer, oil pressure gauge, and temperature gauge are functioning.
- ☐ Verify the two battery storage units have positive terminal protection and each is able to maintain engine cranking speed through a 6 minute cycle.
- ☐ Verify the proper size fuel tank is installed per plan, is marked with fuel capacity, and NFPA 704 placard is clearly visible.

5) Fire Pump Emergency Power

- ☐ Verify in high rise buildings the emergency generator standby power to the fire pump transfers within 60 seconds of normal power failure.

6) **Final Approval**

- ☐ If alterations occurred from the approved plans, as built plans must be submitted for review and approval prior to any testing or inspection.
- ☐ A copy of the manufacturer's pump test curve, the acceptance test documentation, manufacturers catalog cut sheets, and stamped approved plans shall be provided and stored in a mounted cabinet a minimum of 14inches height by 14 inches wide by 4 ½ inches deep located in the pump room.

Any inspections or testing not specifically addressed above must be in full compliance with the 2018 IBC, 2018 IFC, NFPA 20, NFPA 25, and City of Crystal Lake Ordinances.

Fire Alarm Inspection / Testing Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone: (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule your inspection or testing. Please provide up to 48 hours notice to schedule inspections and testing. Actual test date is subject to availability.

1. **Above ceiling inspection is required prior to closing.**
   - ☐ Proper wire size and type are used for the application.
   - ☐ In plenum ceilings only plenum rated wiring and wire ties are installed.
   - ☐ Wiring is supported to structural members with proper hangers.
   - ☐ No splices in the wiring.
   - ☐ Wiring in conduit where required.
   - ☐ All junction box covers must be red in color.
   - ☐ Wiring protected by sleeves when going through walls.
2. **Requirements prior to scheduling a final acceptance test.**
   - ☐ Any installations variations to the initial approved plans require as built plans to be submitted for review and approval.
   - ☐ The fire alarm system must be pre-tested in compliance with NFPA 72.
3. **Final acceptance test.**
   - ☐ Two fire alarm representatives with direct communications are required on site for testing.
   - ☐ A certificate of completion in compliance with NFPA 72 must be provided at time of acceptance testing.
   - ☐ A 100% function test will be completed on all installed devices.
   - ☐ All smoke detectors shall be tested with manufacturer approved smoke.
   - ☐ Addressable panel location descriptions for activation devices will be verified by point and location.
   - ☐ Notification devices shall be tested for function, visual coverage, synchronization, and an audible signal of temporal three (NFPA 72 National Emergency Evacuation Signal).
   - ☐ Fire alarm control and NAC booster panels shall be grounded per the manufacturer recommendations.
   - ☐ The fire alarm control panel and NAC booster panel shall be marked with the electric panel location and designation including the circuit number which provides it with AC power.
   - ☐ Verify proper battery sizes have been installed and are marked with installation dated for all applicable panels.
   - ☐ Fire alarm position number and monitoring agency information shall be indicated on the main fire alarm control panel.

- ☐ Verify the fire alarm system is on a dedicated circuit, properly identified in the electric panel, and a breaker lock is installed.
- ☐ Duct detectors shall be programmed as **Supervisory** alarms, not Full Fire alarms
- ☐ Duct detector and test modules will be tested for function and shut down of only the HVAC unit it services.
- ☐ Duct detector test modules must be key type and mounted no higher than 5 feet from finished floor.
- ☐ Duct detector test modules and HVAC units must be marked/label to match the description of the fire alarm control panel.
- ☐ Annunciator panels shall be tested for 100% function.
- ☐ Full function test of all monitoring signals (supervisory, trouble, and fire override) to be verified with monitoring agency.
- ☐ Testing of fire sprinkler flow and tamper/supervisory switches. Flow switches to be set at approximately 45 seconds retard.
- ☐ Notification devices shall be tested on battery power for proper function.
- ☐ Provide 2 sets of every type of key used in the system.
- ☐ Provide a set of final approved shop drawings, spec sheets of installed devices, and battery/voltage calculations which are to be kept in a permanently mounted cabinet next to the main fire alarm control panel. City ordinance requires the cabinet to be no less than 14 inches high, 14 inches wide, and 4.5 inches deep.

Any items not listed above must meet the requirements of the 2018 IFC, NFPA 72, and the City of Crystal Lake Ordinances.

Kitchen Hood Inspection Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) **Duct inspection**
   - ☐ Inspection of the duct work welds. All welds are required to be water tight throughout.
   - ☐ All changes in direction have clean outs properly installed.
   - ☐ Inspection of the fire insulation wrap to verify it is installed per manufacturer's requirements.
   - ☐ On buildings with multiple ducts it must be verified the duct is marked on the roof indicating the unit it services.

2) **Discharge test – Nitrogen (1 manual & 1 fusible link discharge)**
   - ☐ Manual pull station activates properly.
   - ☐ Fusible link system activates properly.
   - ☐ All discharge nozzle caps blow off or testing balloons inflate to verify no obstructions.
   - ☐ All natural gas shuts down under the hood space.
   - ☐ All electric shuts down under the hood space.
   - ☐ All make up air that is located under the hood shuts down.
   - ☐ Discharge of the system activates the fire alarm into full fire.
   - ☐ Verify the fire alarm description of the activation is correct.

3) **Final acceptance/approval**
   - ☐ Duct work must be water tight welded to the hood.
   - ☐ If any changes occurred from original approved plans, all as built plans have been submitted and approved.
   - ☐ Verify that all appliances are in the proper locations as indicated on the approved plans.
   - ☐ Verify that all nozzles have been installed in the proper location and height.
   - ☐ Verify the nozzles are aimed for proper coverage.
   - ☐ Verify the chemical tank is easily accessible, below the ceiling, and is properly secured.
   - ☐ Verify the proper temperature fusible links are installed in the proper location.
   - ☐ Verify the manual pull station is in the path of egress, between 42-48 inches in height, and is located at a minimum of 10 feet and maximum of 20 feet from the hood.
   - ☐ Verify the manual pull station has operational instructions posted.

- ☐ Verify the hood has proper warning sign posted.
- ☐ Verify the hood has no penetrations voiding the UL 300 listing.
- ☐ Verify the kitchen area has a mounted K class fire extinguisher with the proper instructional sign installed. Travel distance cannot exceed 30 feet from the hood.
- ☐ Update the fire alarm point device map indicting the hood location.
- ☐ Provide one complete set of plans and catalog cut sheets to be stored in a mounted cabinet 14 inches high by 14 inches wide by 4 ½ inches deep. The cabinet shall be located in the fire alarm panel room.

Any inspections or testing not specifically addressed above must be in full compliance with NFPA 17A, NFPA 96, 2018 IFC, and City of Crystal Lake Ordinances.

Clean Agent Testing Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation and approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

1) **Piping inspection:**
   - ☐ Verify proper pipe sizes.
   - ☐ Verify proper hangers and supports.

2) **Nozzle inspection:**
   - ☐ Verify nozzle locations.
   - ☐ Verify nozzle type.

3) **Storage containers:**
   - ☐ Verify location and proper mounting.
   - ☐ Verify proper tank size. The tank must be tagged to identify the agent, amount, and weight.

4) **Pneumatic test:**
   - ☐ The piping shall be pneumatically tested for 10 minutes at 40 psig.
   - ☐ After 10 minutes the pressure shall not drop more than 20% or not less than 32 psig.
   - ☐ The pneumatic test may be omitted if the total piping contains less than one change in direction between the nozzle and container.

5) **Puff test:**
   - ☐ The piping shall be flow tested with nitrogen or an inert gas.
   - ☐ Verify that the piping and nozzles are free from any obstructions.

6) **Room integrity test:**
   - ☐ Protected rooms are required to pass a door fan test to determine the concentration hold time is not less than 6 minutes. Test must be witnessed by the Fire Prevention Bureau.
   - ☐ Smoke pencil testing shall be included to verify the room is sealed properly.

7) **Detection system test:**
   - ☐ Verify the proper spacing of the detection.
   - ☐ Verify the system is cross zoned/zone verification.
   - ☐ 100% testing of the entire fire alarm system installed for the clean agent system.
   - ☐ Verify that the system has 60 hours battery backup.
   - ☐ Verify that the clean agent fire alarm system reports to the main building fire alarm system and is monitored.

8) Operational test:

- ☐ Auxiliary equipment.
- ☐ Abort switch.
- ☐ Manual pull stations.
- ☐ Control panels.
- ☐ Standby power.
- ☐ Solenoid pilot valve (clean agent tank disconnected).

9) Final approval:

- ☐ System shall be installed in full compliance with NFPA 2001 requirements.
- ☐ All proper signs and placards are in place.
- ☐ Pull stations are properly tagged.
- ☐ The clean agent fire alarm system must be added to the main building fire alarm point device map and kept in the cabinet in the main building fire alarm room.
- ☐ A copy of the plans, device specification sheets, and flow calculations must be provided and stored in a cabinet, per Crystal Lake Ordinance. The cabinet shall be mounted in the riser room and be no less than 14 inches high by 14 inches wide by 4 ½ inches deep.

Any testing or inspections required not specifically addressed above must be in full compliance with NFPA 2001, 2018 IFC, and the City of Crystal Lake ordinances.

Fire Door/Damper Testing Requirements

Crystal Lake Fire Rescue Department

100 W Woodstock St.
Crystal Lake, IL 60014

Phone (815) 356-3640
Fax: (815) 477-2568
E-Mail: fpb@crystallake.org

The following inspections and/or tests are required for final installation approval. Contact the City of Crystal Lake Building Department at (815) 356-3605 to schedule inspection/testing. Please provide up to 48 hours notice to schedule inspections/testing. Actual test date is subject to availability.

Rolling Steel Doors

2) Inspection

- ☐ Mounting and assembly bolts are not missing or loose.
- ☐ Fusible link is located per manufacturer's instruction.
- ☐ Guide assemblies have required fire expansion clearance per manufacturer's instructions.
- ☐ Ensure that slats are not bent, have tears or holes.
- ☐ Ensure that endlocks are not missing, broken, bent or loose.
- ☐ Ensure that the bottom bar is not bent nor has loose bolts.
- ☐ Ensure that the guide assembly is not bent, has loose bolts or misaligned.
- ☐ Ensure that the automatic closing mechanism has no broken parts and release arms are not tied, blocked or wedged.

3) Drop Test

- ☐ Conduct drop test per manufacturer's instructions and in compliance with NFPA 80.
- ☐ Door must be fully open before drop test.
- ☐ Door must close fully so the bottom bar rests on the sill.
- ☐ The closing speed must be between 6 and 24 inches per second.
- ☐ Each automatic closing option for the fire door shall be tested.
- ☐ All tests shall be documented indicating location of door, date of inspection, and name of installer.
- ☐ A minimum of two drop tests are required.

Fire, Smoke and Combination Dampers

1) Inspection

- ☐ Damper is installed per manufacturer's instructions to obtain the proper rating.
- ☐ The damper frame must not be penetrated by any foreign objects that would affect fire damper operations.
- ☐ The fusible link is of proper size, temperature and load rating.
- ☐ The damper assembly is free of any damage.

2) Testing

- Door shall be tested per manufacturer's instructions and in compliance with NFPA 80.
- If the damper has a fusible link, the link needs to be removed for testing to ensure full closure and lock-in-place, if so equipped.
- The damper shall be actuated and cycled as a part of the associated smoke detector testing in compliance with NFPA 72 (as applicable).
- The damper operation is smooth and free from binding or hangs up.
- All tests shall be documented indicating location of damper, date of inspection, and name of installer.

Any inspections or testing not specifically addressed above must be in full compliance with the 2018 IBC, 2018 IFC, NFPA 80 and City of Crystal Lake Ordinances.