

Northwestern

Fire Protection System
Impairments (Red Tag)

Environmental Health and Safety

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I. Purpose and Goal

This program is based on the FM Global Fire Protection Impairment Management Data Sheet 10-7 and provides guidance on managing the impairments to fire protection systems that automatically or manually discharge fire extinguishing agents (e.g., water, foam, gaseous, or dry chemical) to ensure community safety on campus. The goal of this program is to supervise the safe shutdown of fire protection systems, control potential fire hazards during impairments, and restore the fire protection system to service as soon as possible.

II. Scope

This program applies to all planned (e.g., maintenance or renovation activities) and unplanned (i.e., emergency) fire protection sprinkler system impairments in Northwestern buildings. This program does not apply to new construction projects that are under the exclusive control of a contractor. An impairment is defined as anything that results in the planned or unplanned shutdown of a fire protection system. This includes, but is not limited to, the shutdown of fire protection water supplies, sprinklers, fire pumps, special fire protection systems, and fire alarm system controlling interlocks.

III. Introduction

Whenever fire protection equipment is impaired for any reason, an unusual fire protection hazard exists, and specific fire prevention procedures are necessary. The probability of a fire causing major damage is increased whenever a fire protection system is impaired. The longer the fire protection system is impaired, the greater the probability becomes. Therefore, it is necessary to minimize the duration and scope of any impairment or provide an alternative protection system.

Adherence to this program will ensure complete precautionary measures are taken and ignition sources are controlled. Note that routine inspection, testing, and maintenance (ITM) of fire protection equipment can create an impairment to the system, and even these brief impairments need to be properly managed. Refer to Appendix C in the FM Global Fire Protection Impairment Management Data Sheet 10-7 for a list of common impairments due to ITM and a list of impairments often discovered through ITM.

IV. Responsibilities

A. Environmental Health and Safety (EHS)

- i. Adhere to the requirements of this program.
- ii. Review, audit, and revise this program as necessary.
- iii. Provide guidance and technical assistance as needed.

B. Facilities

- i. Adhere to the requirements of this program.
- ii. Approve all planned impairments via the Red Tag [Permit](#) System.
- iii. Coordinate impairments with contractors, building managers, fire departments, and other stakeholders as necessary.
- iv. Ensure appropriate measures contained in **Sections V-VII** are adhered to.
- v. Perform impairments (e.g., physically closes valves) and restore systems after impairment (e.g., physically opens valves).
- vi. Attend all required training (see **Section IX**).

- vii. Ensure contractors adhere to the requirements of this program.
- C. **Contractors**
 - i. Adhere to the requirements of this program.
 - ii. Ensure all subcontractors adhere to the requirements of this program.
 - iii. Coordinate impairments with Facilities and other stakeholders as necessary, with as much advanced notice as possible.
 - iv. Not authorized to impair any component of any fire alarm, detection, suppression, or extinguishing system.

V. Planned Impairments

- A. Initiate an FM Global Red Tag [Permit](#) (see **Appendix 1**) and coordinate impairments with Facilities Operations and other stakeholders (e.g., building managers, contractors, local fire department, subcontractors) as necessary.
- B. Plan work on fire protection systems for times when the facility is not operating. If this is not possible, shut down any hazardous processes in the impaired area. This could include ignitable liquids and dust.
- C. Ensure that valves for other, uninvolved fire protection systems remain open and secured during the impairment.
- D. Limit the scope and duration of the impairment (i.e., impair the smallest area possible as opposed to the entire facility), and complete the work on a priority basis to minimize the amount of time fire protection is impaired.
- E. Hot work (i.e., cutting, welding, brazing, grinding) is not authorized in an unprotected area.
- F. Prohibit smoking in the impaired area.
- G. Have all pre-work completed prior to impairing fire protection, including the following:
 - i. Have personnel ready to start work.
 - ii. Have all piping laid out for new underground mains
 - iii. Have all piping and sprinklers needed for a job onsite and available.
 - iv. Have all piping, connections, and equipment installed and completed to the extent possible before impairing the fire protection system.
- H. Ensure the work being done will be carried out without interruption until completion.
- I. Provide temporary protection in the impaired area. For example, fire hoses connected to the sprinkler system and/or fire hydrant, extra extinguishers, charged hose lines, etc.
- J. Ensure the appropriate Northwestern employees, or their designees, are notified, including but not limited to:
 - i. Facilities (e.g., Chief Engineer, Project Manager)
 - ii. Building managers, who should be instructed to inform the building occupants of the impairment
- K. Contact Northwestern University Police and the local fire department to inform them of the impaired fire protection:
 - i. University Police: 847-491-3456 (Evanston), 312-503-3456 (Chicago)
 - ii. City of Chicago Fire Prevention Bureau: 312-746-6900
 - iii. City of Evanston Fire Department (on-call fire investigator): 847-866-5096
- L. Inform the FM Global Customer Service Desk of:
 - i. The fire protection impairment by:
 - a. Telephone (800-411-3929),
 - b. Email (engchicagocustomerservicedesk@fmglobal.com),

- c. Red eTag website (<https://redetag.fmglobal.com>), or
 - d. Other equivalent and effective means.
 - ii. The site index number:
 - a. Evanston Campus 064224.72-01
 - b. Sports Campus (Trienens, Welsh-Ryan Arena, Anderson Hall, and Ryan Field) 003137.66-01
 - c. Chicago Campus 064470.07-3
 - iii. The impairment in detail, and, depending upon what type of fire protection is impaired, provide the following information:
 - a. The type of system being impaired (sprinklers, gaseous suppression, foam, dry chemical, fire pumps, water mist, water supplies, interlocks, etc.).
 - b. Approximately how long the fire protection system will be impaired.
 - c. The reason the fire protection system is being impaired.
 - d. What area and occupancy the impaired fire protection system protects
 - e. If a sprinkler control valve is going to be closed, provide the following information:
 - 1. What valve is being shut
 - 2. What area this fire protection valve protects
 - 3. The reason it is being shut
 - 4. Approximately how long the system will be impaired
 - f. If a fire pump is going to be impaired, provide the following information:
 - 1. The type of fire pump (diesel or electric)
 - 2. Whether there is another fire pump provided that will remain in service
 - 3. Whether there is an alternative water supply available
 - 4. Whether the pump can be started manually in an emergency and, if so, whether there be someone on site 24 hours/7 days per week who knows how to start this pump in an emergency
 - iv. If special protection (gaseous suppression, foam, dry chemical, water mist, interlocks, etc.) is impaired, provide the following information:
 - a. Whether there is automatic sprinkler protection available and in service
 - b. Whether the special protection system can be manually tripped in an emergency and, if so, whether personnel will be instructed/allowed to do this
 - v. If a fire alarm/detection system that activates an automatic fire protection system (e.g., interlocks, deluge, preaction, special protection) will be impaired, include whether automatic sprinkler protection will still be in service.
 - vi. If a water supply is impaired, include the following information:
 - a. Whether this is the only water supply available for fire protection and, if so, whether there is a way to obtain water from other sources nearby (e.g., river, lake, etc.)
 - b. Whether the fire service will be able to park a pumper truck at the facility while the water supply is impaired
- M. Provide ongoing [fire watch](#) patrols of the unprotected area(s).

- N. Have someone assigned to respond to or stand by the impaired fire pump or closed valve so it can be started/opened immediately in an emergency.
- O. Communicate the impairment to all affected employees along with actions and precautions they may need to take.

VI. During an Impairment

- A. Monitor the recommended actions outlined in **Section V** throughout the duration of the impairment.
- B. If conditions change or the duration/scope of the impairment needs to be extended, review the items in **Section V** again.
- C. In the case of an unplanned impairment, stabilize the situation and immediately follow the precautions and notifications in **Section V**.

VII. After an Impairment

- A. Restore fire protection equipment to full automatic service as soon as possible.
- B. Complete any required/necessary testing to ensure the system is fully functional.
- C. If work was done on automatic sprinkler protection, perform a 2-inch drain test on the downstream side of each valve that was closed. This test is very important as the final check to ensure all control valves have been left in the wide-open position.
- D. If work was done to install new underground mains, hydrostatically test the new mains at 200 psi for 2 hours (or 50 psi greater than the working pressure of the system). This will ensure there are no leaks in the underground main. Furthermore, whenever a new underground main is installed or an existing underground main has been repaired, full flushing of the underground is recommended to ensure there are no rocks or other obstructions in the mains.
- E. If work was done to fire pumps, ensure they are in full automatic operation.
- F. Ensure all sprinkler control valves are locked in the wide-open position.
- G. Reset the alarm system; notify the central station (e.g., University Police Dispatch), if applicable.
- H. Notify the applicable stakeholders in **Section V (A, J-L, and O)** that fire protection has been restored.
- I. Complete the FM Global Red Tag Permit.

VIII. Unauthorized Impairments

Any observed or suspected unauthorized impairments (e.g., valve closure) must be immediately reported to the Facilities Operations and Environmental Health and Safety Directors, or their designees.

IX. Training

Northwestern employees with responsibilities contained in this program must complete biennial online [Fire Protection System Impairments \(Managing Impairments Using FM Global's Red Tag Permit System\)](#) training.

X. Recordkeeping

- A. Facilities Operations is responsible for maintaining all completed Red Tag Permits.
- B. Submit all completed Red Tag Permits to:
 - i. Evanston Campus: Technology Institute room NB02
 - ii. Chicago Campus: Wieboldt Hall room B049
- C. Completed Red Tag Permits must be retained on file for at least one year.

XI. Regulatory Authority and Related Information

Northwestern and contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards, FM Global guidelines, and any other applicable codes and standards, including:

[FM Global Fire Protection Impairment Management Data Sheet 10-7](#)

[Northwestern Hot Work Program](#)

[Northwestern Fire Prevention Program](#)

[Northwestern Control of Hazard Energy \(Lockout/Tagout\) Program](#)

XII. Contact

For questions, contact Environmental Health and Safety at ehs@northwestern.edu or FM Global at (800) 411-3929 or chicagocustomerservicedesk@fmglobal.com.

Appendix 1 – FM Global Red Tag Permit System

- A. Obtain and complete a Red Tag [Permit](#) from Facilities Operations:
 - i. Evanston Campus: Technology Institute room NB02
 - ii. Chicago Campus: Wieboldt Hall room B049
- B. Completing the FM Global Red Tag Permit System
 - i. **Part 1** of the tag can be kept by the person responsible or the person who authorized the impairment, so that they in turn can confirm and ensure that all valves have been fully reopened when the fire protection is restored to service.
 - ii. Give **Parts 2 and 3** of the permit to the person assigned to close the sprinkler control valve and ensure they count the number of turns it took to close this valve. This is done so that, when facility personnel are reopening this valve (when work is completed), they can ensure the valve is completely reopened the same number of turns it took to close. The tag must be attached to the closed valve so anyone walking by will see that the fire protection is impaired. **DO NOT LOCK ANY CLOSED SPRINKLER CONTROL VALVES UNLESS REQUIRED BY NORTHWESTERN'S [CONTROL OF HAZARDOUS ENERGY \(LOCKOUT/TAGOUT\) PROGRAM](#)**. Only lock the valves after they have been fully reopened and fire protection has been restored to service.