

FIRE SAFETY  
IMPAIRMENTS TO FIRE PROTECTION SYSTEMS

<u>CONTENTS</u>	PAGE
1. GENERAL. . . . .	2
2. DEFINITION AND SCOPE OF PROGRAM. . . . .	2
3. PROGRAM ADMINISTRATION . . . . .	3
4. PROGRAM COORDINATION . . . . .	4
5. TYPES OF IMPAIRMENT. . . . .	5
6. IMPAIRMENT HANDLING. . . . .	6
7. STATE FIRE SAFETY COORDINATOR . . . . .	15

APPENDIX

1. FIRE PROTECTION EQUIPMENT OUT OF SERVICE TAG . . . . .	
2. STATE NOTIFICATION OF FIRE PROTECTION DECLARED OUT OF SERVICE. . . . .	

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1. GENERAL

- 1.01 This section outlines the procedures for notification and handling of impairments to fire protection systems and equipment on company operated premises.
- 1.02 Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.
- 1.03 An impairment of any protection system or equipment occurs when that protection system, alarm or detection device is removed from service partially or completely. This includes planned (construction, repair, and preventive maintenance) or emergency outages of the system or devices.
- 1.04 The severity of property damage and loss of life from a fire or explosion is dramatically increased whenever a system, alarm or detection device is impaired; and the longer the protection is impaired the greater the probability becomes of this occurring. Therefore, it is necessary to minimize the duration and scope of any impairment.
- 1.05 A protection system may become impaired for a number of reasons, such as maintenance, testing, renovation, construction, equipment failure or just forgetting to activate the system or device. To assure that the impairment is properly handled, management should have an impairment program implemented as an integral part of the building's firesafety program.
- 1.06 The use of this program should also provide the necessary alternate protection while systems are impaired and increase the overall awareness of a potential problem so that timely and effective reaction to the emergency condition takes place.
- 1.07 The primary emphasis should be to insure that company property is adequately protected at all times and that the company maintains a position that is consistent with its overall insurance and risk management programs.

2. DEFINITION AND SCOPE OF PROGRAM

- 2.01 The fire protection systems covered in this program are defined as the associated equipment, components and devices that are constructed into a building and made an integral part of the overall building fire detection or

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building fire suppression system. This shall also include the equipment and connections used to remotely monitor the fire protection system from a centralized alarm center.

- 2.02 The use of portable equipment for fire suppression or detection such as portable fire extinguishers and portable smoke/gas monitoring equipment are not built into the building and therefore not considered part of the required impairment program. At the discretion of local management, this program may be applied to the use of this type equipment.
- 2.03 Impairments to fire protection systems are defined as events that cause the associated equipment, components and devices to not properly function or operate. The impaired portion of the fire protection system is then considered to be out of service. This situation typically requires some form of employee interface action and/or repair activity with the impaired fire protection system to restore service.
- 2.04 Fire protection systems that are substantially impaired have special requirements and procedures that must be followed. For this purpose, a substantially impaired fire protection system shall be defined as one in which the fire protection system is out of service and non-functioning for 10% or more of the area of coverage in a complete zone, room or floor. A single impaired detector or sprinkler head in a room that has a number of operational heads may not be reason to classify the system as substantially impaired unless the number of operational heads is of insufficient quantity to protect greater than 90% of the affected zone, room or floor.

### 3. PROGRAM ADMINISTRATION

- 3.01 The responsibility to administer the impairment program in all owned and leased facilities is with the Assistant Vice President or General Manager whose organization handles the building operations functions. This program shall be handled in such a manner that it is fully coordinated with the firesafety plan at each facility (see section 770-300-200).
- 3.02 It is recommended that the state firesafety plan coordinator and building operations organization handle the implementation activities of the impairment program. Each group shall have responsibilities as outlined in this practice and shall work together to ensure the protection of company property when fire protection systems are impaired.

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- 3.03 All other organizations shall cooperate by performing their assigned duties as detailed in the fire safety plan and coordinate by providing the necessary assistance when requested in support of the overall impairment program. This will require that the building firesafety organization and/or building occupants at the impaired facility work with the building operations and state firesafety plan coordinator at times to provide minor assistance to check, verify and monitor certain actual building conditions.

4. PROGRAM COORDINATION

- 4.01 The responsibility and authority to control the impairment should be assigned to the building operations and maintenance supervisor. In an emergency, local management or fire brigade chief or fire warden/director may have the authority to impair a system, but the overall responsibility of the impairment remains with the assigned individual.
- 4.02 All impairments to fire detection and suppression systems should be reported immediately to the building operations supervisor responsible for the building that has the impairment. This is also stated in section 770-300-200 (the company firesafety plan), section 760-620-900 (fire protection during contract work operations), section 770-320-100 (occupant responsibilities) and Joint Practice 28 (the company safety plan).
- 4.03 During an impairment, it is absolutely necessary that building operations inform and coordinate all impairments with the firesafety organization in the affected facility. The firesafety organization should assist building operations, take required precautions and prepare for a potential problem.
- 4.04 Where there is new construction work on a fire protection system at a location that is not being maintained by building operations, the construction project representative should be assigned these duties until work is completed. All other locations under some form of construction shall have impairments to fire protection systems coordinated through the building operations assigned individual.
- 4.05 Building maintenance personnel should be educated in the basic precautions when a protection system or equipment is impaired. This should be done on-the-job and through the company safety plan in package # 7, J.P. 28. This includes the following considerations:
- a. Report the condition to the building operations supervisor responsible for the impaired building.

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b. Report the condition to the remotely monitored alarm center and firesafety organization for the impaired building.

4.06 Alarm center locations that provide remote monitoring of fire protection systems shall be immediately notified of impairments. These groups shall develop and administer procedures for alternate detection methods when systems are substantially impaired. They shall also keep track of impairment work and participate in on site inspection monitoring of impaired buildings where required.

5. TYPES OF IMPAIRMENT

Proper recognition of the various types of impairment can limit the amount, size and scope of required activity associated with restoration of the fire protection system.

5.01 Concealed Impairment

A concealed impairment is an unknown impairment. It occurs when a fire protection system is left out of service, removed from service by an unauthorized person or has a failure that goes undetected (normally a minor component of the system). A concealed impairment is usually characterized by being observed by the building occupant and not appropriately reported to building maintenance.

A concealed impairment is usually discovered during the building's self-inspection or maintenance programs or by security service observations. The concealed impairment can be prevented by assuring that self-inspection and maintenance programs are performed regularly, promptly and properly. This includes testing of alarms and detection devices.

5.02 Emergency Impairment

An emergency impairment is when an unexpected event occurs impairing the normal function of a protection system. It is usually characterized by a repair or replacement to the existing system that is required to make the system or section of that system operational. If the protection system protects company property that is of significant value and importance, the criticality of the restoration work should be factored and appropriately handled.

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A section of sprinkler piping freezing causing the piping to burst or an electrical short in an early warning fire detection zone control cabinet are examples.

Any emergency situation is normally associated with confusion and a sense of urgency. Therefore, the impairment handling procedures should be adhered to during these emergencies and all decisions regarding the restoration work should conform to or exceed the general requirements set forth in this practice.

5.03 Planned Impairment

A planned impairment is a scheduled impairment. It is usually an improvement or modification to the present system or preventive maintenance type work that is required to maintain the present system.

Adding a new section of sprinkler piping or changing out old sprinkler heads or cleaning/testing of early warning detector heads are examples.

This impairment should be organized, reducing the possibility of problems and minimizing the time required for the impairment. Since the work is planned in advance, the schedule of the impairment can be worked out with the building operations and maintenance department. This will assure that:

1. Parts and materials are available before work is started.
2. Outside concerns such as the public fire department and alarm companies are notified in advance that the system will be out of service.
3. The state Firesafety coordinator has been notified 24 hours in advance. (Refer to paragraph #6.04, the Impairment Notification section of this practice, for details).
4. The remotely monitored centralized alarm center is notified in advance of the actual on site work activities (Refer to impairment notification procedures for details).

6. IMPAIRMENT HANDLING

The following procedures have been developed to more clearly define the responsibilities of building operations and to establish an administrative guide for

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impaired fire protection systems that is in line with the company recommendations from a risk management view-point.

#### 6.01 Precautionary Measures

To help eliminate a major portion of the confusion when handling an impairment, it is necessary that the following procedures be performed as precautionary measures.

1. Isolate the area where the situation or condition is causing the impairment. If possible, keep the remaining protection system in service. This may require temporary connections or bypassing the system.
2. Notify the centralized alarm center that an impairment has occurred and indicate if any of the alarms have been affected (Refer to paragraph #6.04, the Impairment Notification section of this practice, for details).
3. Report the impairment to the building maintenance supervisor, the firesafety organization (depends upon structure of firesafety plan at building) and the building occupant that the impairment has occurred.
4. Secure any hazardous production operation in the area where the protection system is impaired. Stop any unnecessary cutting and welding that would increase the probability of an occurrence.
5. Properly "tag out" the impaired system or equipment with a Protection System Out Of Service tag. The tag supply will be maintained by building operations as required. Refer to paragraph #6.05, the Out Of Service Tag section of this practice, for details.
6. Start repairs on the impaired system as soon as the area is secured. Continue to work on the impairment until it has been restored to service. Any welding or cutting required for the repair should be performed in a protected area with the appropriate permit authorized.
7. Place portable extinguishers in the impaired area at accessible locations.

Once the situation is under control and all hazardous conditions have been eliminated, the supervisor in charge should evaluate site conditions and take the appropriate action outlined as follows:

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1. If this is a substantial impairment causing the protection system to be out of service during times that the building is left unattended and/or unoccupied, notify the public fire department that an impairment has occurred and provide them the details of the impairment (Refer to impairment notification procedures for details).
2. Notify the state fire safety coordinator about the condition found if the restoration of the impairment is estimated or actually lasts more than 24 hours with the system impaired (Refer to paragraph #6.04, the Impairment Notification section of this practice, for details).
3. Work out monitoring details if the fire protection system is substantially impaired and the area will be unattended or building unoccupied (Refer to paragraph #6.03, the Impairment Monitoring section of this practice, for details).

If a contractor will be used to work on the protection system or equipment, the contractor should not be allowed to impair the system without authorization from the building maintenance personnel. In addition, the contractor should be required to follow the building safety rules and requirements.

Where building maintenance employees are performing preventive maintenance type work that can be classified as a planned impairment, advanced authorization or blanket type authority can be given to work on the fire protection system. The local building supervisor should provide this authorization. This authority doesn't apply to construction work or to impairment repairs classified as emergency or concealed.

If the work requires notification of the state firesafety coordinator, outlined in section 6.04 of this practice, the building maintenance employee must report the impairment to the building supervisor for appropriate handling.

#### 6.02 Impairment Work

Impairments to fire protection systems shall be completed as soon as reasonably possible and shall be handled with top priority as compared to other building maintenance type work. The necessary arrangements should be made accordingly and so that the impaired system is fully restored within the limitations provided for in this practice. This work generally involves:

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1. Restoring the fire protection system.
2. Taking the required precautionary measures.
3. Administering the required impairment monitoring during unattended or unoccupied times.
4. Trying to determine the reason for the condition and take the necessary corrective action to prevent it from recurring.
5. Verifying the system's integrity by following the restoration procedures.

Impairments to fire protection systems shall be handled as a top priority. This may required that:

1. workers spend overtime to restore service and/or take the required precautions.
2. contractors be hired to expedite work activities and/or provide the required expertise.
3. assistance be requested from other work groups affected by the impairment in the building.
4. extra expense be incurred to rush material/supply deliveries and/or hire available specialty contracted services.
5. critical spare parts be centrally stored or special supply arrangements made so that material is available for repairs.

Certain limitations have been established and should be followed during impairment restoration work. This may require special arrangements and a degree of pre-planning to meet these expectations. They are outlined as follows:

1. Fire detection or suppression systems that are substantially impaired shall have restoration work immediately started and continued until the system is no longer substantially impaired.
2. All substantially impaired fire detection or suppression systems shall be returned to service within 3 days of initial discovery of the impairment.

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3. All other fire protection system impairments, regardless of impairment type, scope and size, shall be restored to full operational service within 1 week of the initial impairment.

Restoration work that is required to be immediately started and continued shall not stop unless there is a lack of available material or expertise to perform the required work. If work can not be continued or completed within the allowed time frame, the effort and action taken must be justifiable when reported to the state firesafety coordinator.

During times that a building containing a substantially impaired fire protection system becomes unoccupied or unattended, the impaired areas of the building must be inspected and observed in accordance with the impairment monitoring section of this practice.

Any portion of a fire suppression system that is impaired and doesn't have work performed or is not returned to full operational service in accordance with these limitations shall be declared non-functional and/or out of service. This declaration shall be made by the state firesafety coordinator to the company firesafety coordinator as outlined in this practice.

#### 6.03 Impairment Monitoring

In order to protect the company property investment and provide the necessary life safety in a building containing an impaired fire protection system, building operations must institute monitoring of the impaired area of the building. This work should be performed by company employees (management or non-management) or by contracted building security service.

Impairment monitoring involves on site inspection and observation for evidence of fire and smoke during times the building is unoccupied and/or impaired area is unattended. A complete walk-thru is required every 1 to 4 hours of all areas that are being covered by the impaired fire protection system.

All buildings containing substantially impaired fire protection systems shall be monitored during times that the building is left unattended and/or unoccupied with the system impaired.

Impairment monitoring should be done as frequent as the risk exposure or hazardous condition necessitates and requires on-site evaluation on a case by case bases. One of the major factors that should be used is the combined asset

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value of the building and contents. Where this exceeds 10 million in value, strong consideration should be given toward providing on the hour monitoring. This type information can be obtained from the state firesafety coordinator.

Impairment monitoring is a shared responsibility of building operations and the occupants of the building. For this reason, the following guidelines are suggested when making arrangements for impairment monitoring:

- a. Building security should perform the required monitoring if available and present in or near the impaired building.
- b. Company employees should be used to perform the monitoring if available and working in or near the impaired building.
- c. The centralized alarm center should be involved in making the necessary arrangements to perform monitoring at the impaired building.
- d. The fire safety organization within the impaired building and/or building occupants should participate in monitoring activities at the impaired building.

Building operations is not required to perform monitoring but is required to take the necessary steps to properly handle the impairment. Building operations should give consideration towards the amount of work and inconvenience imposed by impairment monitoring when making decisions on restoration activities. This may necessitate special arrangements for after hours impairment restoration work that exceed the requirements of this practice.

#### 6.04 Impairment Notification

o State firesafety coordinator:

Impairment notification procedures should be followed when an emergency impairment occurs or when a concealed impairment is found or a planned impairment is scheduled. Immediately notify the state firesafety coordinator on those impairments where estimated or actual conditions cause the fire protection system to be out of service for more than 24 hours. (Impairment notification should only occur if impairment lasts more than 24 hours.)

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Building operations should notify the state firesafety coordinator as soon as possible after the work site has been properly secured. This should be done at any time or day; including nights, weekends and holidays. The notification process is as follows:

1. Indicate that you are calling in a Fire Protection Impairment Notification.
2. Provide the following information:
  - a. Your name and phone # where you can be reached.
  - b. Type of impairment and description of impaired system.
  - c. Whether the system is partially or completely impaired.
  - d. An estimated length of time the system/equipment is to be impaired.
  - e. What precautionary measures have been taken while the impairment exists.
  - f. What action is going to take place for impairment monitoring.
  - g. Impairment work that is not being handled as generally outlined in this practice.
  - h. Whether proper impairment notification has been given to the alarm center and local fire department.

Important reminder for Restoration Notification - Once the fire protection has been restored, immediately notify the state firesafety coordinator.

If necessary, a telephone answering machine should be provided for calls made after normal working hours.

The state firesafety coordinator shall analyze each impairment notification and verify the compliance conditions of this practice as well as any other local requirements and/or concerns.

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o Fire department notification:

The local fire department should be notified when a substantially impaired system causes all, a major portion or a critical area of the protection system to be out of service for more than one occupied shift work day (9 hours or more) or during all times that the building is left unattended and/or unoccupied; notify the public fire department that an impairment has occurred and provide them the details of the impairment.

This notification should be provided by building operations early on in the impairment handling process and verified by the state firesafety coordinator.

o Alarm center notification:

Building operations should notify the centralized alarm center that remotely monitors the impaired fire protection system whenever impairments occur to that system. This notification is provided immediately to make the center aware that certain fire protection is out of service.

o Firesafety organization notification:

Building operations should notify the building occupants and firesafety organization of any fire protection system impairments. In most buildings there will not be a formal firesafety plan requiring the establishment of a firesafety organization. In this case, notification should only be provided to the building occupants.

This will allow timely and effective decisions in case of an emergency condition. In addition, the firesafety organization or building occupants may be called upon to participate in monitoring the impaired area of the building.

6.05 Out Of Service Tag

All impaired fire protection equipment or systems that are left unattended shall be labeled by building operations with an out of service tag. An example of this tag is provided in Appendix 1 and should be handled as follows:

- a. The information should be completely filled out with the applicable check list items marked.

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- b. The tag should be attached to the impaired fire protection equipment. Where impaired equipment is located in administrative office spaces, the tags should be placed back at the closest main control device, cabinet, valve, pump, etc. Tags should not be placed in administrative areas.
- c. A supply of tags will be available by ordering from the Forms Catalog using form number SW-3013 (6-88).
- d. Tags should be removed upon completion of restoration work.

6.06 Impairment Restoration

After completing the work, it is important to assure that the fire protection has been properly restored. It requires nine steps to be accomplished. Each step should be verified by the individual that authorized the impairment. These steps are:

1. Open all valves that were secured during the impairment. Verify that the system is properly lined up and valves are open by conducting a drain test. (Note: If during the test the pressure drops below normal, the system may have a restriction or partially closed valve).
2. Place all alarms or detection devices back into service.
3. Restore any fire protection equipment to "automatic" that was secured or placed in "manual".
4. Verify that portable extinguishers are in place and are fully charged.
5. Notify the building firesafety organization (shift and fire brigade chief) that the fire protection system/equipment has been restored.
6. Notify the centralized alarm center that fire protection has been restored and the alarms will be verified.
7. If notification was given to the public fire department, immediately notify them that the fire protection system is now restored to service and all alarms have been activated.
8. If notification was given to the state firesafety coordinator, immediately notify them by telephone that the fire protection system has been restored.

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9. Remove the out of service tag from the impaired fire protection system and send it to the state firesafety coordinator. This shall be done regardless of notification requirements or the actual on site situation.

7. STATE FIRESAFETY COORDINATOR

Notification procedures shall be established and followed as outlined in this practice to inform the state and company firesafety plan coordinators on severe type impairments. The state firesafety coordinator shall record and evaluate impairment notification information from the building operations organization and provide the necessary administrative duties associated with the overall responsibility. These are outlined as follows:

1. Impairment notification information should be recorded and tracked in written log form.
2. Provision should be made for recording impairment notification messages after normal working hours.
3. Impairments should then be evaluated against the provisions of this practice and appropriately handled if not in compliance.
4. Advise building management of alternative protection or corrective action while the system is impaired.
5. Enforce the adherence to company firesafety practices. Inform upper management of critical problems.
6. Declare systems that are not restored to service within the limitations of this practice as non-functional and out of service. This should be immediately reported to the company firesafety coordinator by fax and by telephone call. Report the information contained in Appendix 2 on a locally duplicated form for this purpose. Make sure that the reason for non-compliance with this practice is stated on the form.
7. An administrative review process should be established and implemented by the state firesafety coordinator to ensure that all employees are following their assigned duties. This can be completed through periodic review and audit of the firesafety inspection reports. Further analysis may reveal the need to perform on site investigations.

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