

# **Emergency Management: Practical Tools and Resources That Every FM Needs**



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# Agenda

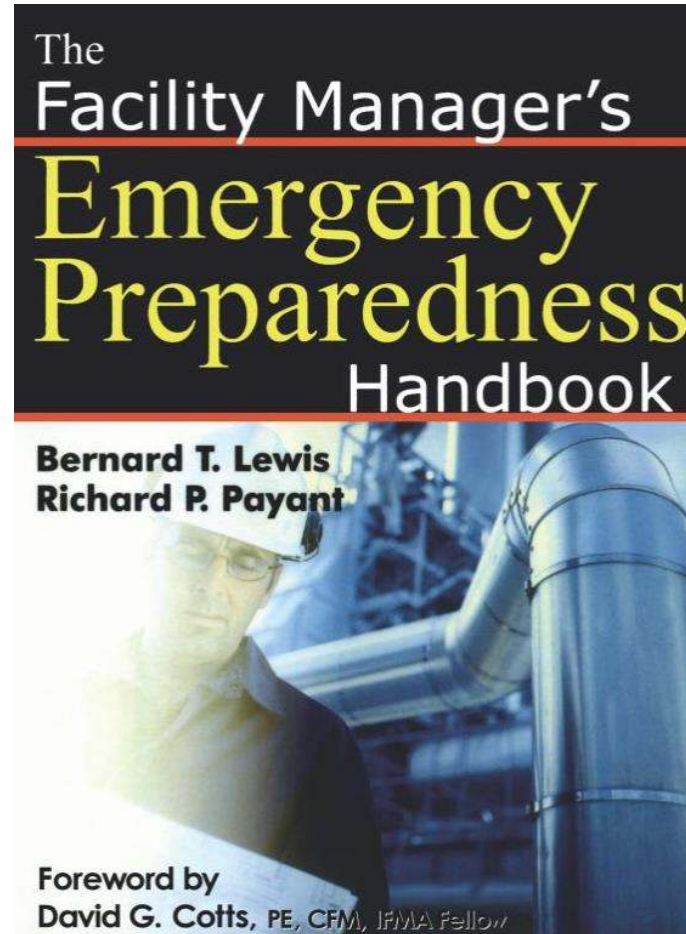
- **Defining Emergency Management**
- **What does a good disaster response scenario look like?**
- **Preparing your sites for the next emergency**
- **Local Emergency Management Resources**

# Simplar Institute

- Group of **researchers** and **educators**
- Integrated within the **organizations** (clients/buyers and suppliers)
- Developed **tools, methods, & training** to enhance:
  - Organizational Transformation
  - Procurement & Sourcing
  - Project & Risk Management
  - Operational Efficiency
  - Human Dimensions
  - Performance Measurements
  - Benchmarking & Workforce
  - Facility Management Professional Training



# FM's Emergency Handbook

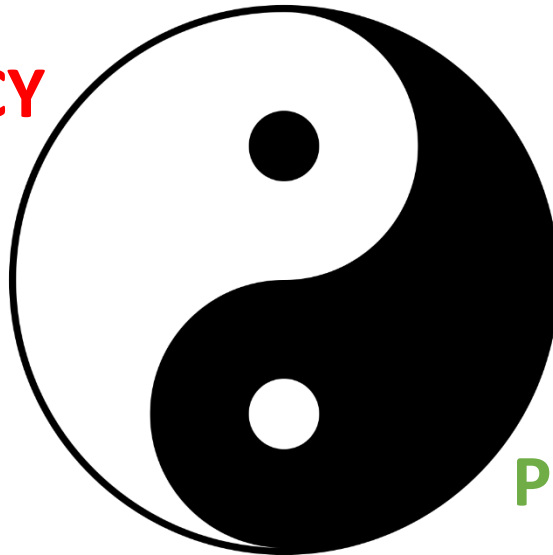


<https://www.amazon.com/Facility-Managers-Emergency-Preparedness-Handbook/dp/0814473628>

# What is an “Emergency” in FM?

- Any unplanned event that could lead to injury, death, or loss of property

**EMERGENCY**



**PREPAREDNESS**

How well prepared you are is  
directly correlated with ability to respond

# Types of Emergencies

- **Man-made:** workplace violence, labor strikes, indoor air quality, hazmat spills, terrorism
- **Natural:** weather or environmental conditions; droughts, fires, flooding, earthquakes; snow; hail
- **Technological:** telecommunication failure; denial-of-service attacks; electrical power loss; HVAC failures

# Goals of Emergency Plan

**Life safety is #1**

**Property protection is #2**

# Hurricane Harvey



Image credit:

<https://www.cnn.com/2017/08/26/us/gallery/hurricane-harvey/index.html>

- City of Houston is flooded
- A third of your sites are underwater
- Hundreds of employees with no home
- No power
- Airports & hotels closes
- Can't get access to your sites
- Threat of looting
- Limited communication

## What is the plan?



# Challenges in Responding

- **Different behaviors at different departments**
  - corporate & regional offices
- **Plan did not exist (“and if we did have a plan, no one really know about it”)**
- **Each department has their own priorities, plan to respond, and did not understand how decisions impacted each other**
  - Legal, Operations, Construction, Real Estate, Risk, Accounting, IT
- **Good intentions... but not integrated or coordinated (“we had too many cooks in the kitchen”)**
- **Many people were operating independently, duplicating efforts of others, without considering impact of their decisions**

# Recommendations

- 1. Develop templates & checklists**
  - detailed processes, logistics, and support specific to the risks associated with our geographic regions
- 2. Corporate introduces, educates, and building support for a company-wide emergency preparedness plan for each region**
- 3. Set the expectation for annual “table-top” exercises**
  - not just another corporate initiative
  - each region familiar and comfortable with their plan
- 4. Numerous updates to Emergency Plan: website, repair/construction providers, IT connectivity, real estate (landlord obligations), product logistics**

# Emergency Response Plan

# Key Functions

Lewis, B. and Payant, R. (2003). *The Facility Manager's Emergency Preparedness Handbook*. AMACOM, New York. (pp 23)

- **Chain of Command**

- FM is usually onsite responsibility until AHJ [authority having jurisdiction] arrives
- Things to consider: access to facilities [keys], facility plans, annual tour & training; planned actions

- **Budget and Accounting**

- Develop emergency preparedness budget
- Coordinate this budget (estimated cost of \$1 / SF as a minimum for initial plan)

| FACILITY USE           | DOES FM PROVIDE SECURITY OPERATIONS? |     |     | IF "YES" THEN... |                |
|------------------------|--------------------------------------|-----|-----|------------------|----------------|
|                        | N                                    | YES | NO  | \$/RSF           | NUMBER OF FTEs |
| Headquarter            | 282                                  | 51% | 49% | \$1.96           | 9              |
| Mixed Use Office       | 118                                  | 47% | 53% | \$1.20           | 7              |
| Education              | 81                                   | 37% | 63% | \$4.56           | 3              |
| Branch/Regional Office | 81                                   | 41% | 59% | \$2.09           | 4              |
| Manufacturing          | 78                                   | 40% | 60% | \$1.02           | 4              |

<https://bit.ly/omresearch>

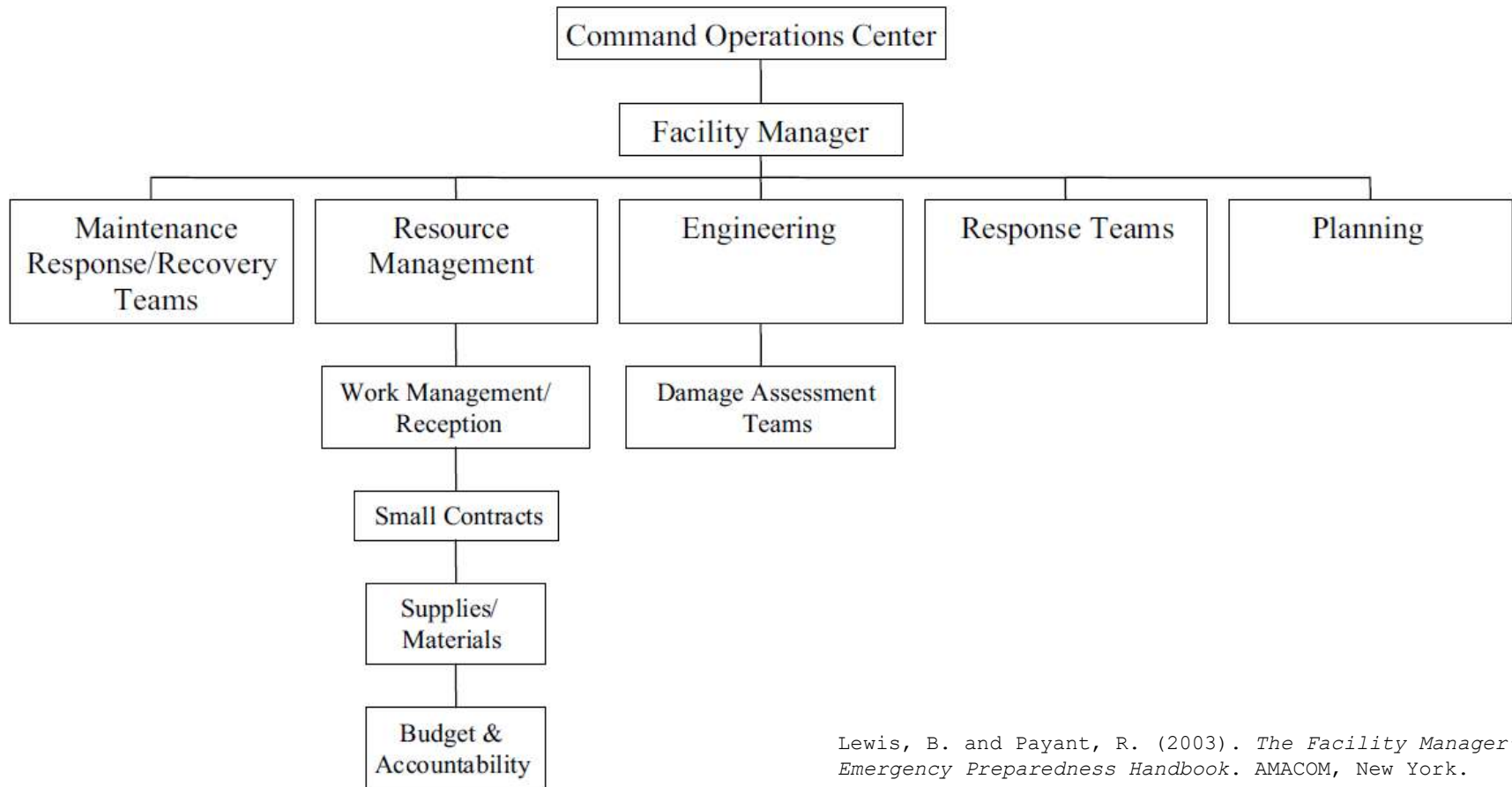
# Emergency Operations Center (EOC)



<https://www.rivcoemd.org/Programs/Response/Emergency-Operations-Centers>



# Emergency Operations Center



Lewis, B. and Payant, R. (2003). *The Facility Manager's Emergency Preparedness Handbook*. AMACOM, New York.

# Ideal FM Resources in an EOC

- ✓ **Workstations to inspect & coordinate work**
- ✓ **Comms with field / trades personnel**
- ✓ **Access to CMMS**
- ✓ **Facility as-built drawings**
- ✓ **Standard Operating Procedures (SOPs)**

# **Develop an Effective Exercise Program**



# Emergency Management Cycle



## RESPONSE

“large muscle” movements of an incident

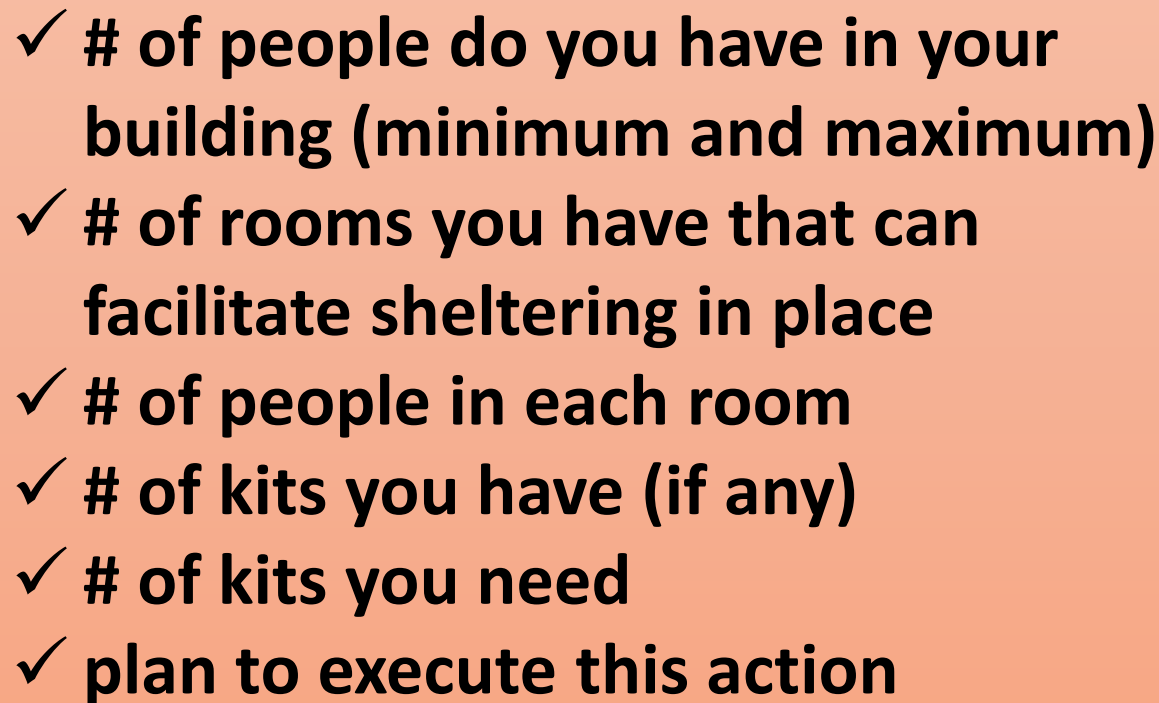
## RECOVERY

help organizations know what’s needed for short-, mid-, and long-term recovery



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# Preparedness Cycle

- 
- A circular diagram representing the Preparedness Cycle. It features a blue arrow on the left pointing upwards, labeled 'Mitigation'. At the top, a blue arrow points right, labeled 'Preparedness'. On the right, a green arrow points downwards, labeled 'Response'. At the bottom, a green arrow points left, labeled 'Recovery'. The cycle is partially obscured by a large orange rounded rectangle containing a list of tasks.
- ✓ # of people do you have in your building (minimum and maximum)
  - ✓ # of rooms you have that can facilitate sheltering in place
  - ✓ # of people in each room
  - ✓ # of kits you have (if any)
  - ✓ # of kits you need
  - ✓ plan to execute this action

assess threats,  
hazards, and risks



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# Preparedness Cycle



staffing, budget,  
team, processes



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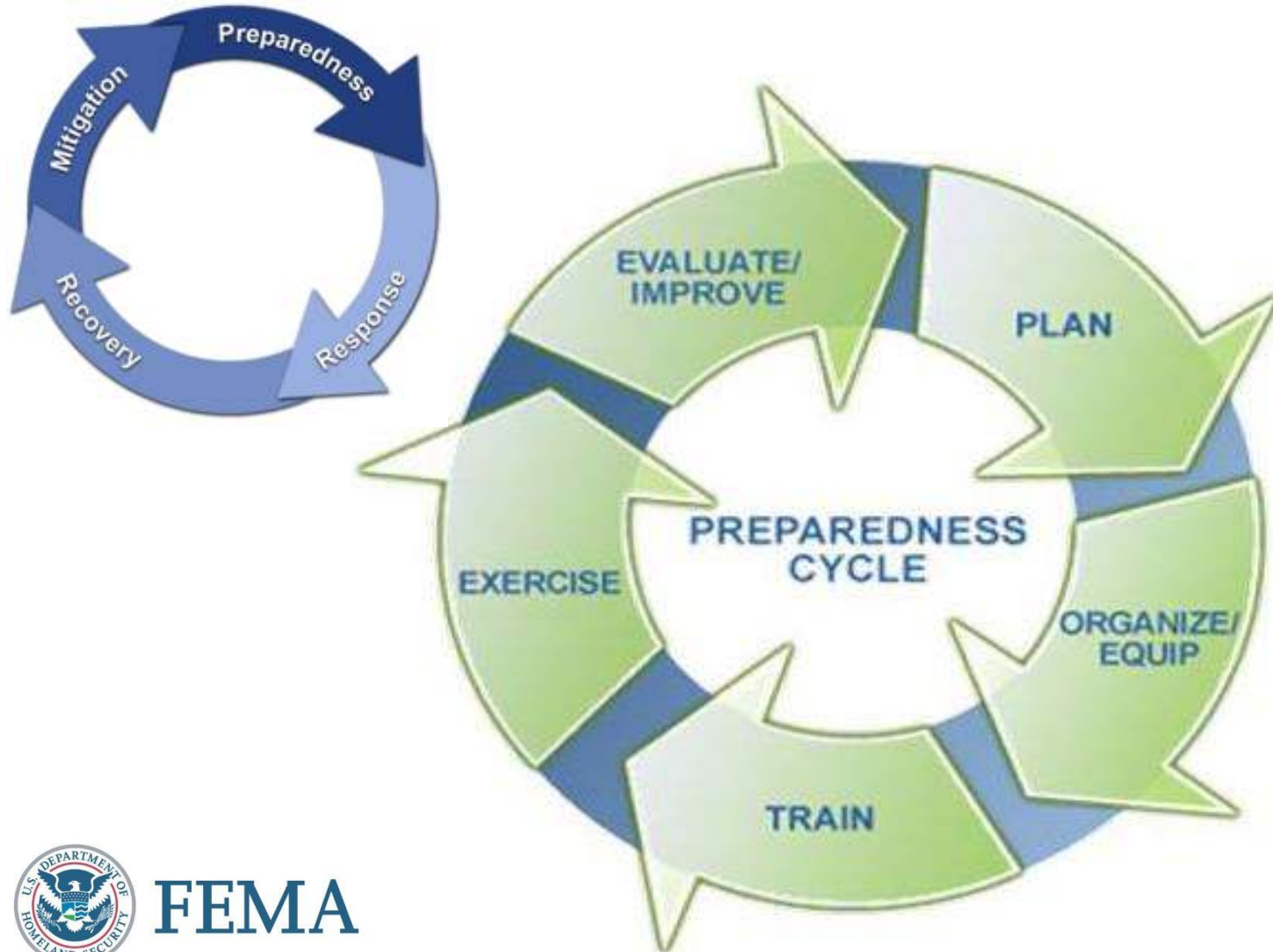
# Preparedness Cycle



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get ready

# Preparedness Cycle



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# Exercise Cycle



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# Why Exercise?

- Exercises **VALIDATE** the work you've done to prepare!!!
  - Clarify roles and responsibilities
  - Evaluate plans and procedures
  - Assess resources and capabilities
  - Identify gaps, needs and solutions
  - **Develop effective relationships**



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# The Homeland Security Exercise and Evaluation Program (HSEEP)



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# Whole Community Engagement



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# Effective Exercise Design

## Discussion-Based

## Operations-Based



- Seminar
- Workshop
- Tabletop (TTX)
- Game

- Drill
- Functional Exercise (FE)
- Full-Scale Exercise (FSE)



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# Emergency Systems

## *Management Checklist*

|  | YES   | NO    | REMARKS |
|--|-------|-------|---------|
| 1. Is an emergency power source provided?  | _____ | _____ | _____   |
| 2. How much of the building can be operated by this emergency power source?                                | _____ | _____ | _____   |
| 3. Are dual substation feeders available to allow for obtaining power from two directions?                 | _____ | _____ | _____   |
| 4. Has cogeneration, load sharing, and peak shaving been considered when using the emergency power system? | _____ | _____ | _____   |
| 5. Has an emergency power recovery plan been developed, issued, and follow-up training been performed?     | _____ | _____ | _____   |

# Preparedness Resources

## Planning:

- Comprehensive Preparedness Guide (CPG 101)

## Training:

- Emergency Management Institute(EMI) Independent Study (IS) courses
- Center for Domestic Preparedness (CDP)/Formal Course catalog

## Exercises:

- HSEEP doctrine/course
- Preparedness Toolkit
  - Exercise Starter Kits (ESK)

*\*Critical Infrastructure: DHS Cybersecurity & Infrastructure Security Agency*



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# Preparedness Resources cont'd

## Developing and Maintaining Emergency Operations Plans

| Feedback Submission Form  |  |        |       |        |     |           |         |                                  |
|---|--|--------|-------|--------|-----|-----------|---------|----------------------------------|
| Comprehensive Preparedness Guide 101 Stakeholder Input  |  |        |       |        |     |           |         |                                  |
| First Name:   | <div>Please save file as:<br/>CPG101_Feedback_LastName_YYYYMMDD.xlsx</div>   |        |       |        |     |           |         |                                  |
| Last Name:  | <div>Please submit electronically to: <a href="mailto:NPD-Planning@fema.dhs.gov">NPD-Planning@fema.dhs.gov</a></div> |        |       |        |     |           |         |                                  |
| Email Address:  |  |        |       |        |     |           |         |                                  |
| Submittal Date:   |  |        |       |        |     |           |         |                                  |
| <p>Category Definitions:<br/>Critical - Refers to significant content issue that should be addressed (i.e., content would cause conflicts, flaws, confusion, and/or voids when implemented)<br/>Substantive - Refers to factually incorrect information<br/>Administrative - Refers to typographical, grammatical, or formatting errors; vague or unclear meaning</p> |  |        |       |        |     |           |         |                                  |
| Page #  | Start  | Line # | Start | Line # | End | Category* | Comment | Recommendation/Proposed Language |
|   |  |        |       |        |     |           |         |                                  |
|   |  |        |       |        |     |           |         |                                  |
|   |  |        |       |        |     |           |         |                                  |

<https://www.fema.gov/media-library/assets/documents/184690>

## Emergency Management Independent Study Courses

**FEMA** | Emergency Management Institute





### Distance Learning

The Emergency Management Institute (EMI) offers self-paced courses designed for people who have emergency management responsibilities and the general public. All are offered free-of-charge to those who qualify for enrollment. To get a complete listing of courses, view the [list of active courses](#).

<https://training.fema.gov/is/>

# Preparedness Resources, cont'd

## Center for Domestic Preparedness



<https://cdp.dhs.gov/>

## National Preparedness Course Catalog



### Welcome to the National Preparedness Course Catalog

Welcome to the National Preparedness Course Catalog, an online searchable catalog featuring a compilation of courses managed by the three primary FEMA training organizations: the Center for Domestic Preparedness (CDP), the Emergency Management Institute (EMI), and the National Training and Education Division (NTED). The National Preparedness Course Catalog features a wide range of course topics in multiple delivery modes to meet the increasing training needs of Federal, state, local, territorial, and tribal audiences.

[Go to National Preparedness Course Catalog](https://www.firstrespondertraining.gov/frts/npsc)

<https://www.firstrespondertraining.gov/frts/npsc>

# Preparedness Resources, cont'd

## HSEEP Doctrine



Figure 3.1: Sample Exercise Planning Team


<https://www.fema.gov/media-library/assets/documents/32326>

<https://training.fema.gov/programs/hseep/elk146hseepcourse/>

## Cybersecurity and Infrastructure Security Agency (CISA)

**What Does CISA Do?**


CISA is responsible for protecting the Nation's critical infrastructure from physical and cyber threats. This mission requires effective coordination and collaboration among a broad spectrum of government and private sector organizations.



**Comprehensive Cyber Protection**

CISA's National Cybersecurity and Communications Integration Center (NCCIC) provides 24x7 cyber situational awareness, analysis, incident response and cyber defense capabilities to the Federal government; state, local, tribal and territorial governments; the private sector and international partners.

CISA provides cybersecurity tools, incident response services and assessment capabilities to safeguard the networks that support the essential operations of federal civilian departments and agencies.



**Infrastructure Resilience**

CISA coordinates security and resilience efforts using trusted partnerships across the private and public sectors, and delivers training, technical assistance, and assessments to federal stakeholders as well as to infrastructure owners and operators nationwide.

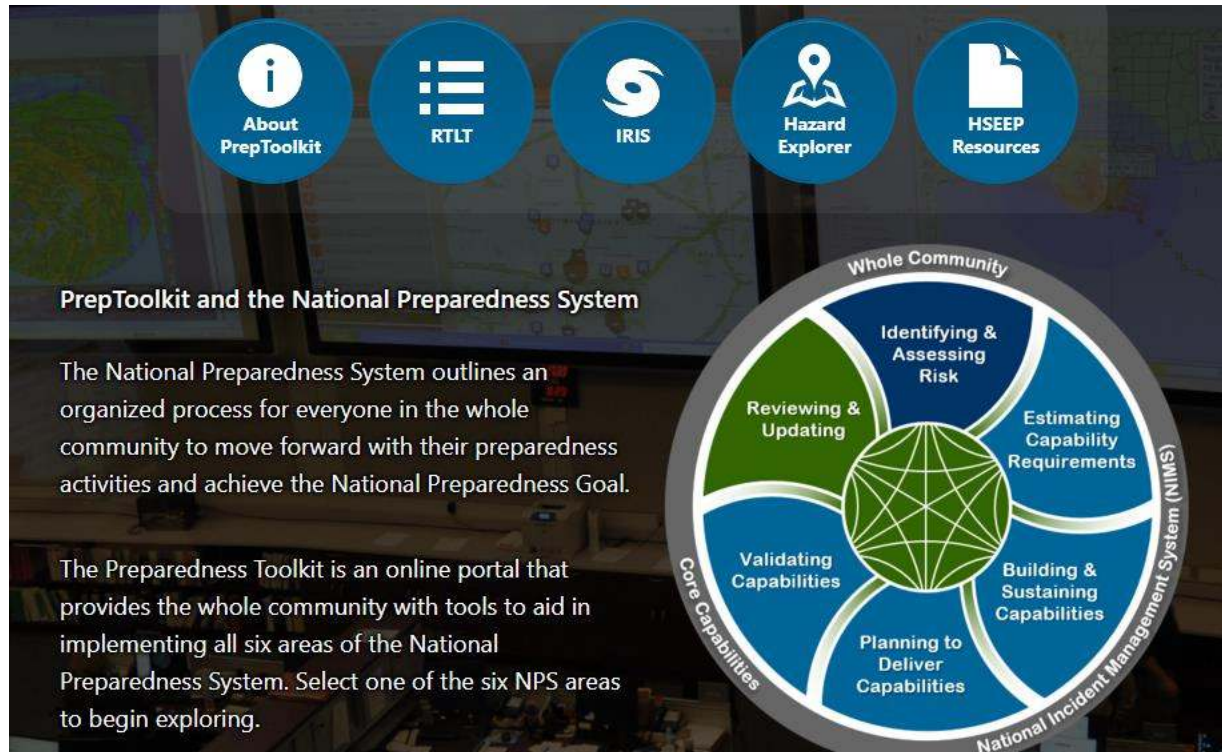
CISA provides consolidated all-hazards risk analysis for U.S. critical infrastructure through the National Risk Management Center.

<https://www.cisa.gov/>



# Preparedness Resources, cont'd

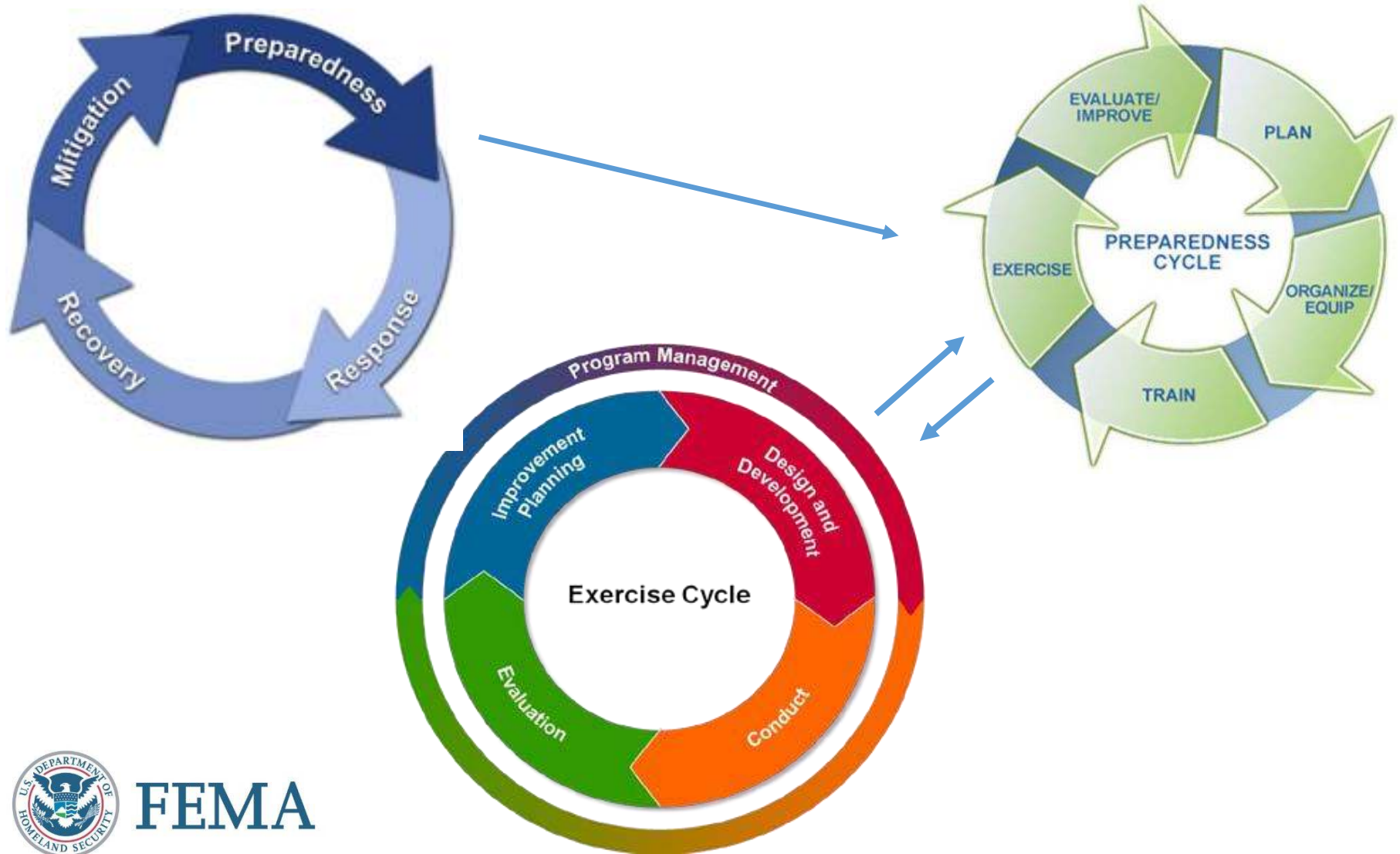
## Preparedness Toolkit



<https://preptoolkit.fema.gov/>



# Review



# What does a good plan look like?

## **Must be SIMPLE:**

difficult-to-read (i.e., small print) thick plans are not read

## **Must be PARTICIPATIVE:**

individuals & managers must be involved in creating the plan

## **Must be BELIEVED:**

publicize it and exercise it!

# Cyber Security

# National Focus in 2020: Critical Infrastructure



## Chemical Sector

The Department of Homeland Security is designated as the Sector-Specific Agency for the Chemical Sector.



## Communications Sector

The Communications Sector is an integral component of the U.S. economy, underlying the operations of all businesses, public safety organizations, and government. The Department of Homeland Security is the Sector-Specific Agency for the Communications Sector.



## Dams Sector

The Department of Homeland Security is designated as the Sector-Specific Agency for the Dams Sector. The Dams Sector comprises dam projects, navigation locks, levees, hurricane barriers, mine tailings impoundments, and other similar water retention and/or control facilities.



## Emergency Services Sector

The Department of Homeland Security is designated as the Sector-Specific Agency for the Emergency Services Sector. The sector provides a wide range of prevention, preparedness, response, and recovery services during both day-to-day operations and incident response.



## Commercial Facilities Sector

The Department of Homeland Security is designated as the Sector-Specific Agency for the Commercial Facilities Sector, which includes a diverse range of sites that draw large crowds of people for shopping, business, entertainment, or lodging.



## Critical Manufacturing Sector

The Department of Homeland Security is designated as the Sector-Specific Agency for the Critical Manufacturing Sector.



## Defense Industrial Base Sector

The U.S. Department of Defense is the Sector-Specific Agency for the Defense Industrial Base Sector. The Defense Industrial Base Sector enables research, development, design, production, delivery, and maintenance of military weapons systems, subsystems, and components or parts to meet U.S. military requirements.



## Energy Sector

The U.S. energy infrastructure fuels the economy of the 21st century. The Department of Energy is the Sector-Specific Agency for the Energy Sector.

<https://www.cisa.gov/infrastructure-security-division>

# Commercial Facilities Sector Plan

## COMMERCIAL FACILITIES SECTOR

The Commercial Facilities Sector includes a diverse range of sites that draw large crowds of people for shopping, business, entertainment, or lodging. Facilities within the sector operate on the principle of open public access, meaning that the general public can move freely without the deterrent of highly visible security barriers. The majority of these facilities are privately owned and operated, with minimal interaction with the federal government and other regulatory entities.

The Commercial Facilities Sector consists of eight subsectors:

- Entertainment and Media (e.g., motion picture studios, broadcast media).
- Gaming (e.g., casinos).
- Lodging (e.g., hotels, motels, conference centers).
- Outdoor Events (e.g., theme and amusement parks, fairs, campgrounds, parades).
- Public Assembly (e.g., arenas, stadiums, aquariums, zoos, museums, convention centers).
- Real Estate (e.g., office and apartment buildings, condominiums, mixed use facilities, self-storage).
- Retail (e.g., retail centers and districts, shopping malls).
- Sports Leagues (e.g., professional sports leagues and federations).





# Sector-specific Risks

## 2.2 Sector Risks

The CF Sector is one of the few U.S. critical infrastructure sectors in which terrorists have executed multiple high-profile attacks directly affecting the public, both in the physical and cyber domain. The following section covers emerging risks to the CF Sector and outlines the sector's risk profile.

### Notable Trends and Emerging Issues

- **Changing domestic and international terrorist threats**—The Boston Marathon bombing in 2013 highlighted the danger posed by homegrown violent extremists (HVEs)—lone actors or insular groups that are not directly tied to terrorist organizations. Federal counterterrorism experts consider HVEs to be “the most likely immediate threat to the homeland.”<sup>41</sup> The United States also faces growing threats from the terrorist group Islamic State of Iraq and the Levant (ISIL), those it inspires, and other international terrorist groups. Insider threats—radicalized individuals who may work at a commercial facility and use their inside knowledge to exploit vulnerabilities—are also a growing concern.
- **Increasing interdependencies between sectors**—Cities and regions increasingly rely on complex networks of interconnected infrastructure that comprise and are operated by integrated physical and cyber systems. After a disaster, a failure in one system—such as in the Water or Energy Sectors, on which the CF Sector relies strongly—could cascade and greatly affect the regions they serve.
- **Increased cyber risks**—Adversaries have successfully executed point-of-sale attacks on large retailers and hotels to gain access to confidential data, which has cost companies and financial institutions hundreds of millions of dollars. Governments have launched targeted cyber espionage or sabotage attacks, and there has been an increase in “hacktivism,” or politically motivated cyberattacks. The Federal Bureau of Investigation (FBI) identified North Korea as the source behind recent cyberattacks that published thousands of confidential company documents online, including personal email correspondences and employee data.<sup>42</sup> Building management systems—from heating, ventilation, and air conditioning (HVAC) systems, to access control—are increasingly computerized,

# Coordination

## Commercial Facilities Sector Partnership Structure

Figure 1. Commercial Facilities Sector Partnership Structure

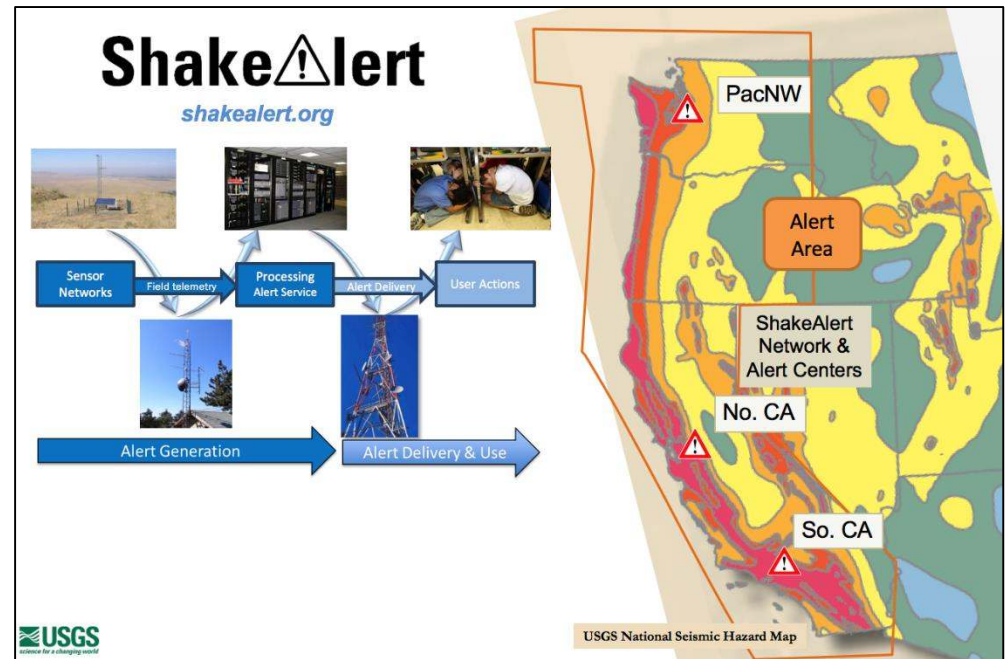


# Notification and Warning Systems

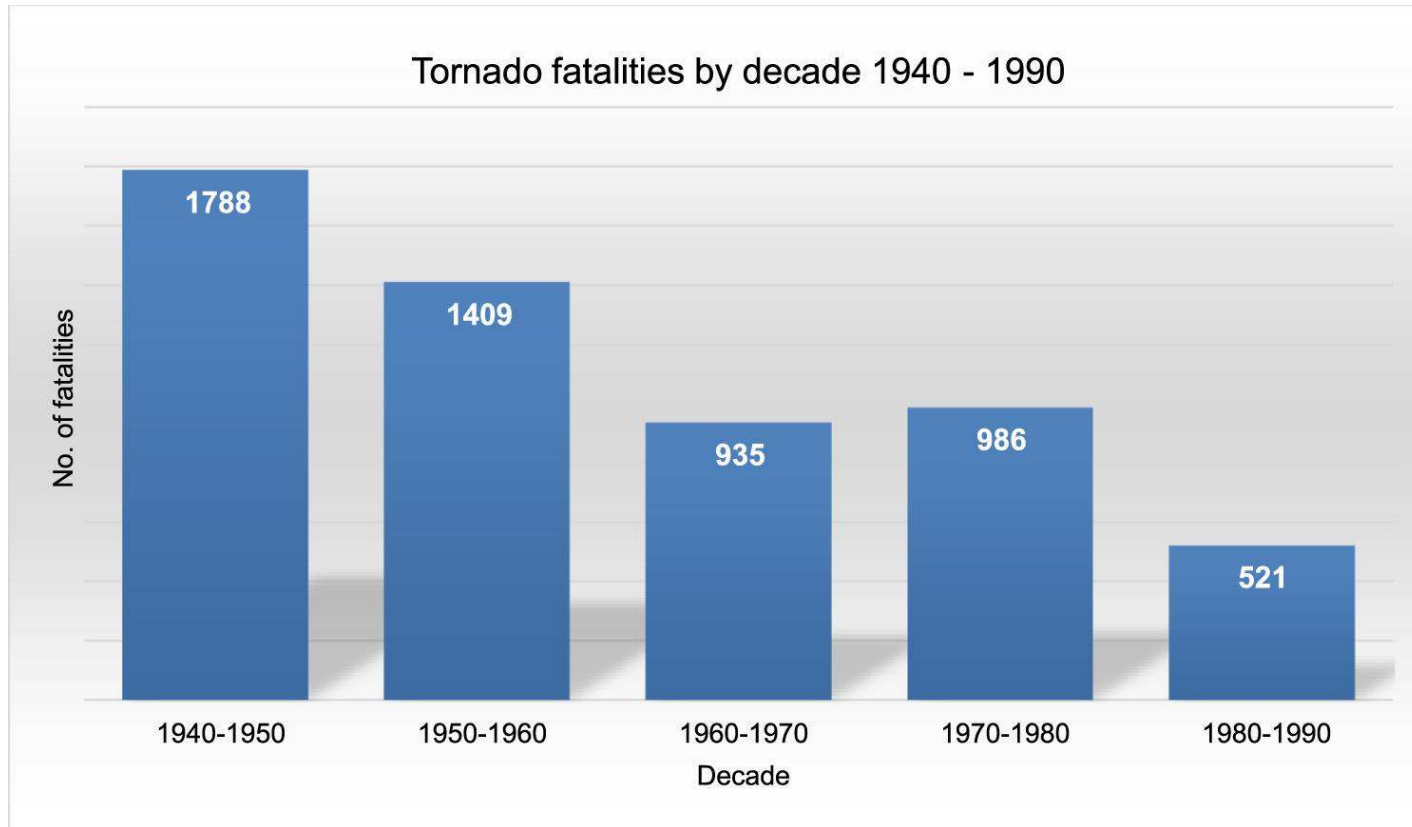


# Overview

- Warn of impending or potential disaster
- Simple to complex



# Warnings Help Reduce Injury



Stokoe, R. M. (2016). "Putting people at the centre of tornado warnings: How perception analysis can cut fatalities." *International Journal of Disaster Risk Reduction*, 17, 137–153.

# How does this apply to FM?

## PROS

- Entire site / all buildings
- Targeted
- Quick
- Life safety

## CONS

- Requires Education
- Requires Attention

# Before & After Actions

Lewis, B. and Payant, R. (2003). *The Facility Manager's Emergency Preparedness Handbook*. AMACOM, New York. (pp 279)

## 4. Individual and Organization Actions

The following actions should be taken by individuals and department organizations prior to participating in drills, to prepare for incidents and recover immediately following an incident:

### A. Before:

- ☐ Review evacuation procedures.
- ☐ Know where fire exits are located and visually check them.
- ☐ Know where assembly points are located outside the buildings.
- ☐ Have emergency kits placed by each desk or machine, or somewhere within easy access. The kit should include a flashlight, first-aid kit, battery-operated radio, roll of duct tape, and blanket.

### B. After:

- ☐ Secure the area immediately and appraise the threat.
- ☐ Assist security personnel to secure the scene and establish a perimeter until local authorities arrive.
- ☐ Assist with rescue of personnel, using available equipment.
- ☐ Keep log of all events.
- ☐ Keep all employees periodically apprised of the situation.

# Building Systems Inspections

- Conduct facility inspection after an incident

## Chimneys and Stacks

1. Brick and concrete walls
2. Foundations
3. Caps
4. Exposed metal surfaces
5. Linings, support cables, and baffles
6. Guys, anchorage, and bands
7. Ladders
8. Painters' trolley
9. Openings for cleanout doors, breech, and flues
10. Clean out doors and fastenings
11. Spark arrester screens
12. Lightning rods, terminals, cables, and ground connections
13. Lights, hoods, reflection shields, and receptacle fittings
14. Conduit

Lewis, B. and Payant, R. (2003). *The Facility Manager's Emergency Preparedness Handbook*. AMACOM, New York. (pp 285)

# Emergency Preparedness & Building Design

- **Access to site [especial open campuses]**
- **Retrofit sites, but also standards in new construction that address the concerns**
- **Becoming more on the forefront of building design**
- **More exercising**



# Resources

# Emergency Preparedness Certificate

## *Arizona State University*

This certificate will provide you with an understanding of the key roles and responsibilities of Emergency Preparedness and Emergency Management Planning.

### Topics:

- Planning, management and support of an Emergency Preparedness Program/Plan
- Development of Emergency Management Plan
- Impacts of upon the Business
- Risks & Security Threats
- Technology Systems & Services

### Units:

- Emergency Preparedness
- Emergency Management Plans & Best Practices
- Assignment: Emergency Management Plan Report, comparisons of your company vs. best in class and other standards (provided).

**Course code: EP200**

**Suggested prerequisite: OM100**

**Approximate duration: 4-8 weeks**

**3 CEUs, 22 LUs, 22 AIA HSWs**

**Website: <https://pdt.engineering.asu.edu/>**

# Additional Resources

- Lewis, B. and Payant, R. (2003). *The Facility Manager's Emergency Preparedness Handbook*. AMACOM, New York. (<https://www.amazon.com/Facility-Managers-Emergency-Preparedness-Handbook/dp/0814473628>)
- <https://www.fema.gov/building-science/>
- <https://disastersafety.org/hurricane/>
- <https://disastersafety.org/hurricane/shut-the-doors-on-hurricanes/>

# Questions?

- **Planning is CRUCIAL**
- **You need to practice what you plan**
- **Equip your people to be successful**