



WISCONSIN HEALTHCARE ENGINEERING ASSOCIATION
Dedicated to Excellence in Healthcare Engineering

“Lunch & Learn”
2016 Webinar Series

May 12, 2016

Utility Risk Assessments



Presented By:
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Utility Risk Assessments

- 1. Why a Risk Assessment?**
- 2. NFPA 99 Risk Assessment**
- 3. *ASHE Tool – Assess Your Needs***
- 4. *Evaluate Your Utilities***
- 5. Report Your Findings**

1. WHY DO A UTILITY RISK ASSESSMENT?

**It's a Good
Idea ...**

*Dig the well before
you are thirsty.
-Chinese Proverb*

**To Proactively Deal
with Potential Problems**

1. WHY DO A UTILITY RISK ASSESSMENT?

And . . .

cuz the Code says:



YOU HAVE TO !

1. WHY DO A UTILITY RISK ASSESSMENT?

Accredited
by



Hospitals need to do risk assessments **NOW** for compliance with:

EC.02.01.01 EP 1 – Identify Risks
EC.02.01.01 EP 3 – Take Action



Hospitals & Nursing Homes will need to do risk assessments **after July 5, 2016** when NPSA 99-2012 goes into effect
(Get Started NOW)



**Has officially adopted the
2012 LSC & NFPA 99**

- 1. Effective Date for Construction...July 5, 2016
(New vs Existing)**
- 2. Effective Date for Survey.....TBD
(Typically 6 months after adoption)**



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JUNE 9 Lunch & Learn **Will cover 2012 Codes**

1. Things CMS has Excluded
2. Things CMS has Added
3. Significant Code Changes
4. New Inspections & Reports
5. New Referenced Codes
6. Survey Forecasts

NFPA® 99

2012 Edition

HEALTH CARE FACILITIES CODE

Including all Gas & Vacuum
System Requirements

1. Now a CODE
2. For All Utilities
3. For Nsg H & Hospitals
4. Effective 7/5/16



Formerly
Applicable only to:

1. Anesthetizing
2. High Haz Labs
3. Med Gas Use

RETURN TO
UTILITY
RISK
ASSESSMENT

WHY DO A UTILITY RISK ASSESSMENT?

Worked Together to Help You:



EC.01.01.01

EC.02.03.05

EC.02.05.01

EC.02.05.03

TJC: Physical Environment Portals

http://www.jointcommission.org/topics/the_physical_environment.aspx

ASHE:



<http://www.ashe.org/compliance/index.shtml>

WHY DO A UTILITY RISK ASSESSMENT?

Aug-Sept 2015 Portal:

EC.02.05.01: The hospital manages risks associated with its utility systems

Standard Scoring Analysis

Standard	EP	Issue	% Non-compliant	COP
EC.02.05.01	15	Air pressure, filtration and air changes in critical care areas such as the OR	32.78	§482.42 (A-0747)
	8	Label utility system controls for partial or complete emergency shutdown	21.39	§48241(a) (A-0701)
	1	Design and Installation of utilities to meet patient care and operational needs	10.39	§482.41 (A-0700)

WHY DO A UTILITY RISK ASSESSMENT?

**What is meant
by a
RISK ASSESSMENT?**

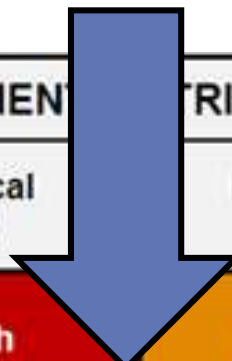
TRADITIONAL RISK ASSESSMENT PROCESS

The process of evaluating the severity & probability of a failure

RISK ASSESSMENT MATRIX	
SEVERITY	
PROBABILITY	

TRADITIONAL RISK ASSESSMENT PROCESS

REQUIRED ACTIONS



RISK ASSESSMENT MATRIX				
SEVERITY \ PROBABILITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	Serious	Medium
Probable (B)	High	High	Serious	Medium
Occasional (C)	High	Serious	Medium	Low
Remote (D)	Serious	Medium	Medium	Low
Improbable (E)	Medium	Medium	Medium	Low

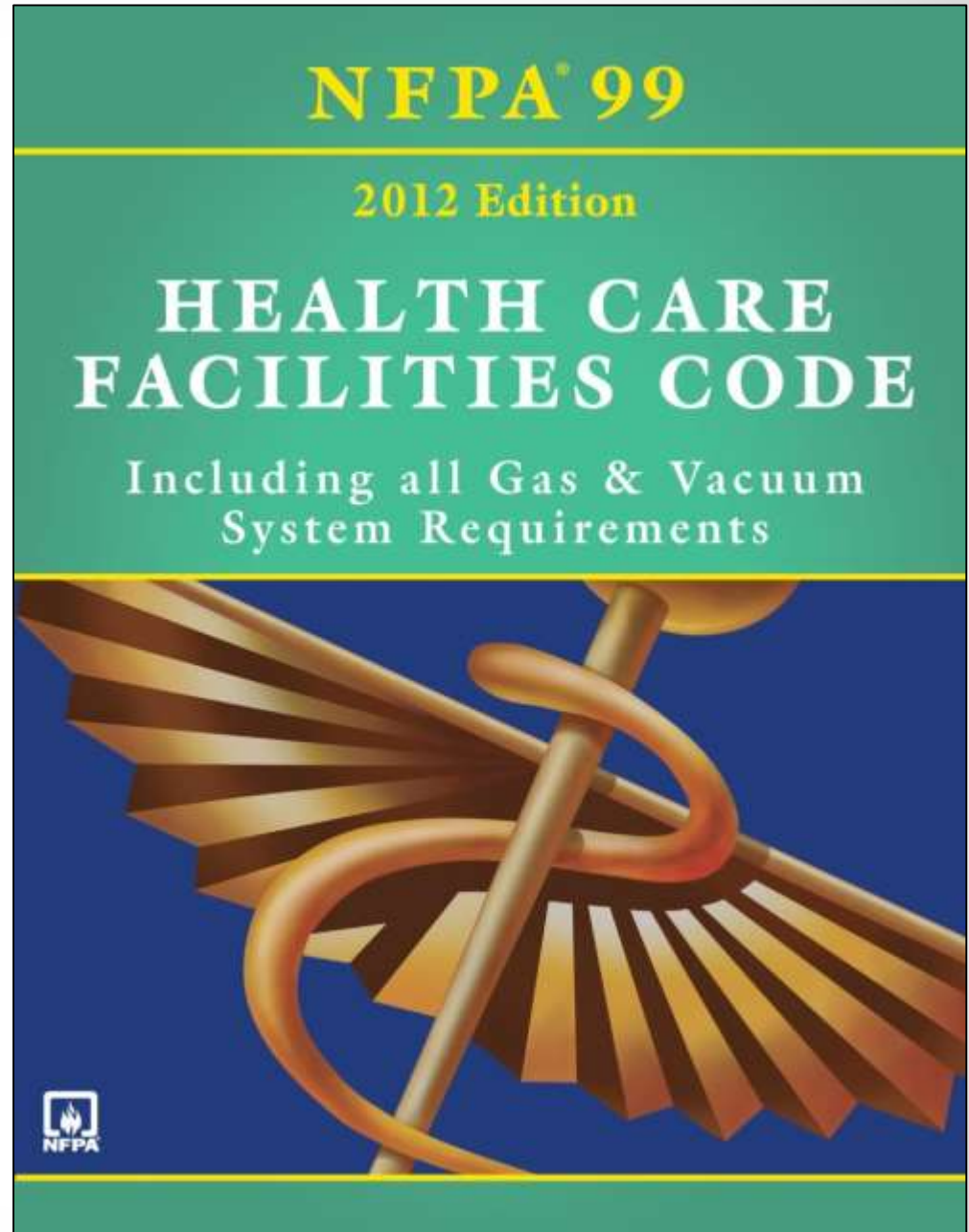
2. NFPA 99 (2012 ED) RISK ASSESSMENT PROCESS

**NFPA Uses a simpler
process**

**defines utility requirements
according to impact of failure**

Chapter 4
(NEW CHAPTER)

**FUNDAMENTALS
OF
RISK
ASSESSMENT**



NFPA 99 (2012 ED) RISK ASSESSMENT PROCESS

The process of evaluating the seriousness & ~~probability~~ of a failure

RISK ASSESSMENT MATRIX				
SEVERITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)

NFPA 99 (2012 ED) RISK ASSESSMENT PROCESS

The process of evaluating the seriousness of a failure

RISK ASSESSMENT MATRIX				
SEVERITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
	1	2	3	4

NFPA 99 (2012) – RISK CATEGORIES

Evaluate effect of failure,
Based on harm to patients, staff & visitors

1. Failure may cause death or serious injury (High Patient Impact)
2. Failure limited to minor injuries (Minor Patient Impact)
3. Failure may cause discomfort (Slight Patient Impact)
4. No impact on patients or caregivers (No Patient Impact)

NFPA 99 (2012 ED) RISK ASSESSMENT PROCESS

Severity Assessment Considerations

1. Consider equipment/component failure;
NOT intervention by people
2. The risk category of each component shall be independent of the category applied to other systems that serve the same space.
3. Consider worst-outcome scenario of a failure impact

**NFPA 99 (2012 ED) RISK
ASSESSMENT PROCESS**

**Risk
Categories**

Category 1

Failure likely to cause major injury/death

Major injury

- Any amputation
- Loss of sight, or injury to eye
- Unconsciousness that requires resuscitation, medical treatment, or hospital admit
- Acute illness from bio agents

Examples of Failures

In this category

- Emergency power to OR's
- Medical gas system in ICU
- Ventilator-assisted procedure in a MOB
- Cardiac cauterization imaging equipment

UTILITY REQUIREMENT: Must work
All the time (Life Support)

Category 2

Failure likely to cause minor injury

Minor injury

- Not serious
- Not involving risk to life

Examples of Failures

In this category

- Task or procedural lighting in patient rooms
- Potable water in the patient care areas

UTILITY REQUIREMENT: Must have a high level of reliability; Limited downtime can be tolerated

Category 3

Failure not likely to cause injury, but may cause discomfort

Discomfort

- No harm, but may cause dissatisfaction

Examples of Failures

In this category

- Heating system in southern US
- Humidity control in non-operating areas
- Dental drill
- Motorized bed adjustments
- Cooling tower makeup water

UTILITY REQUIREMENT: Can have normal reliability; Failure would not immediately affect patient care.

Category 4

Failure would have no impact on patient care

Examples of Failures In this category

**No impact
on patient
care**

- Gray water lawn sprinkling
- Seasonal lighting systems
- Public address system
- Pneumatic tube systems
- Vacuum systems in a research area

**UTILITY REQUIREMENT: Reduced
reliability okay; Failure not noticeable to patients**

NFPA 99 (2012 ED) RISK ASSESSMENT PROCESS

HOW DO THESE CATEGORIES GET USED?

RISK ASSESSMENT MATRIX				
SEVERITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
	1	2	3	4

RISK CATEGORY

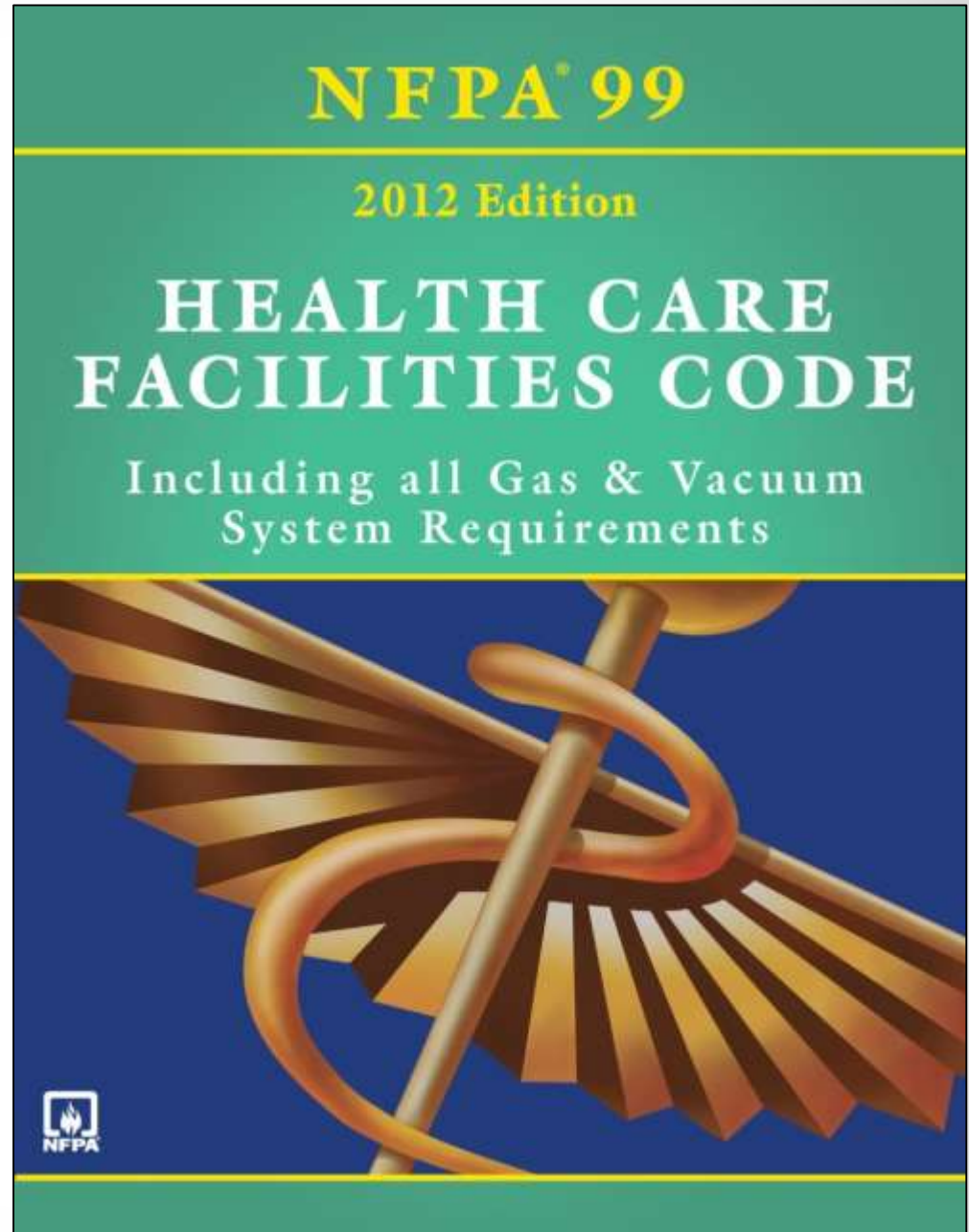
In each space

DETERMINES

UTILITY

REQUIREMENTS

1 2 3 4



Chapters:

5 – Med Gas

6 – Electrical Sys

~~7 – Info Tech~~

~~8 – Plumbing~~

9 – HVAC

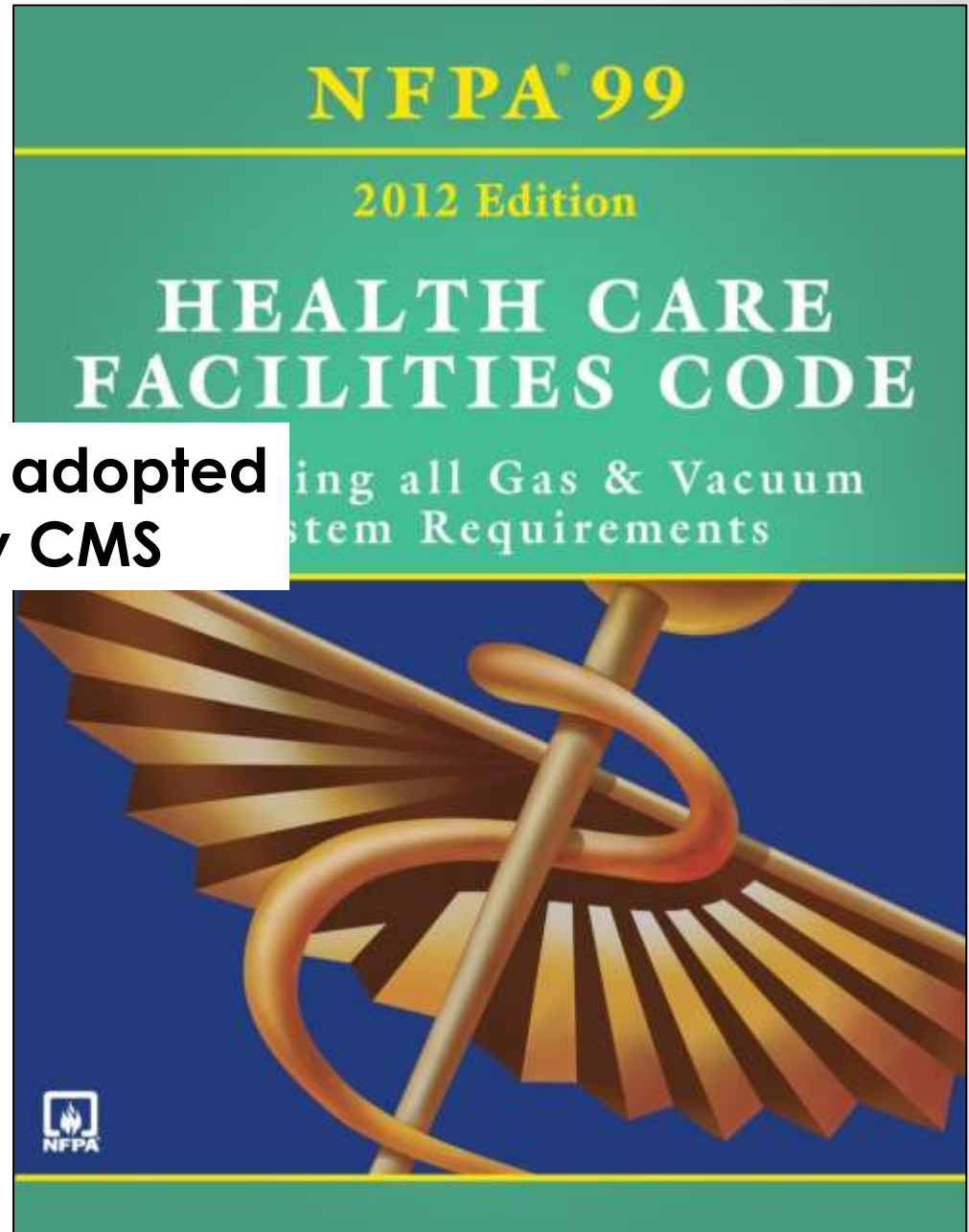
Chapter 15

Sprinkler & Fire
Alarm

(NOT risk based)

Always #1

← Not adopted
by CMS



NFPA® 99

2012 Edition

HEALTH CARE FACILITIES CODE

Including all Gas & Vacuum
System Requirements



**In other words
You need to
know the risk to
determine the
code
requirements**

3. ASHE RISK ASSESSMENT TOOL

Systems Risk Assessment Tool												ASHE							
Category Legend		Chapter 5			Chapter 6	Chapter 7			Chapter 8				Chapter 9	Chapters 10 and 11		Chapter 12			
Room Name		Room #	Space	Air	Electrical Systems	Medical	Water	Drinking Water	Heating	Conditioning	Medical Compressed Air	Waste Water	Waste Water	Waste Water	Ventilation	Air-Conditioning	Equipment (See Equipment tab.)	Emergency Management (See Emergency Management tab.)	
OR 1	1021	1	1	1	1	1	2	1	3	1	2	2	1	3	2	2	1	1	1

**ASHE DEVELOPED
A RISK ASSESSMENT TOOL
BASED ON NFPA 99 (2012 ED)**

Systems Risk Assessment Tool



**Facilities can
Methodically
EVALUATE & DOCUMENT
their
NFPA 99 Risk Levels**

**Free download of Excel
Spreadsheet to ASHE members**

<http://www.ashe.org/resources/tools.shtml>

1	Category Legend																						
2		Chapter 5	Chapter 6	Chapter 7	Chapter 8			Chapter 9	Chapters 10 and 11	Chapter 12													
3	Room Name	Room #	1	1	1	1	1	2	1	3	1	2	2	1	3	2	2	1	1	1	1	Equipment (See Equipment tab.)	Emergency Management (See Emergency Management tab.)
4	OR 1	1021	1	1	1	1	1	2	1	3	1	2	2	1	3	2	2	1	1	1	1		

Systems Risk Assessment Tool



Category Legend		Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 9	Chapters 10 and 11	Chapter 12
Room Name	Room #	Oxygen Medical Air Vacuum WAGD	Electrical Systems	Data Phone Nurse Call Cable TV	Potable Water Non-Potable Water Water Heating Water Conditioning Non-Medical Compressed Air Black Waste Water Gray Waste Water Clear Waste Water	Heating Ventilation Air-Conditioning	Equipment (See Equipment tab.)	Emergency Management (See Emergency Management tab.)
OR 1	1021							

← Utility System →

↑
Space
↓

**Fill in the
Risk Category**

Systems Risk Assessment Tool



Category Legend		Chapter 5	Chapter 6	Chapter 7	Chapter 8				Chapter 9	Chapters 10 and 11	Chapter 12
Room Name	Room #	Space	Oxygen Medical Air Vacuum WAGD	Electrical Systems	Data Phone Nurse Call Cable TV	Potable Water Non-Potable Water Water Heating Water Conditioning	Non-Medical Compressed Air Black Waste Water Gray Waste Water Clear Waste Water	Heating Ventilation Air-Conditioning	Equipment (See Equipment tab.)	Emergency Management (See Emergency Management tab.)	
OR 1	1021		1 1 1 1	1	1 2 1 3	1 2 2 1 3	2 2 1 1 1 1	1 1 1 1			

**INSTRUCTIONS &
3 WORKSHEETS**



ASHE- RISK ASSESSMENT

“Instructions”

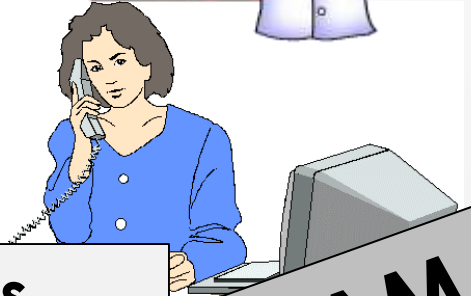
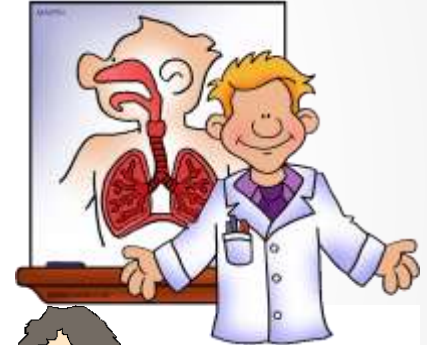
explain how to use the 3 worksheets

**Initial 3 STEPS
(Pre-Risk Assessment)**

ASHE- RISK ASSESSMENT

Initial 3 STEPS - (Pre-Risk Assessment)

1. Establish a Multidisciplinary Team



Coordinate with:

- Patient Caregivers
- Quality Improvement
- Infection Prevention
- Environment of Care

**TEAM
Effort**

ASHE- RISK ASSESSMENT

Initial 3 STEPS - (Pre-Risk Assessment)

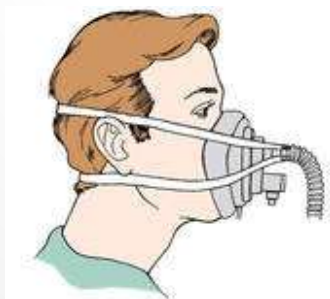
2. Familiarize the Team with the NFPA the 4 Risk Categories

1. Failure may cause death or serious injury (High Patient Impact)
2. Failure limited to minor injuries (Minor Patient Impact)
3. Failure may cause Discomfort (Slight Patient Impact)
4. No impact on patients or caregivers (No Patient Impact)

ASHE- RISK ASSESSMENT

Initial 3 STEPS - (Pre-Risk Assessment)

3. Familiarize the Team with how each utility system can affect patient safety



ASHE- RISK ASSESSMENT

“SYSTEMS WORKSHEET”

“Systems “worksheet is used to enter & record the Risk Category # for the various systems within a given space

ASHE- RISK ASSESSMENT




“SYSTEMS WORKSHEET”

Category Legend			Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 9
Room Name	Room #	Space	Oxygen Medical Air Vacuum WAGD	Electrical Systems	Data Phone Nurse Call Cable TV	Potable Water Non-Potable Water Water Heating Water Conditioning Non-Medical Compressed Air	Black Waste Water Gray Waste Water Clear Waste Water Heating Ventilation Air-Conditioning
OR 1	1021		1 1 1 1	1	1 2 1	1 2 2 1	1 1 1

Note: A large black 'X' is drawn over the Chapter 7 and Chapter 8 columns in the original image.

ASHE- RISK ASSESSMENT

“SYSTEMS WORKSHEET”

Category Legend			Chapter 5				Chapter 6	Chapter 9		
Room Name	Room #	Space	Oxygen	Medical Air	Vacuum	WAGD	Electrical Systems	Heating	Ventilation	Air-Conditioning
OR 1	1021		1	1	1	1	1	1	1	1
										

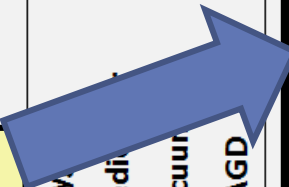
Not adopted
by CMS

ASHE- RISK ASSESSMENT

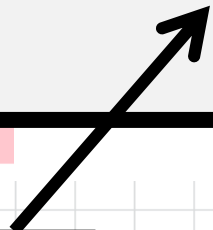
“SYSTEMS WORKSHEET”

Step 1 – List EVERY room & space in the facility

Category Legend			Chapter 5				Chapter 6			Chapter 9		
Room Name	Room #	Space	Oxy	Medi	Vacu	WAGD	Room #	Space	Heating	Ventilation	Air-Conditioning	
OR 1	1021		1	1	1	1	1021		1	1	1	



Enter unique ID info



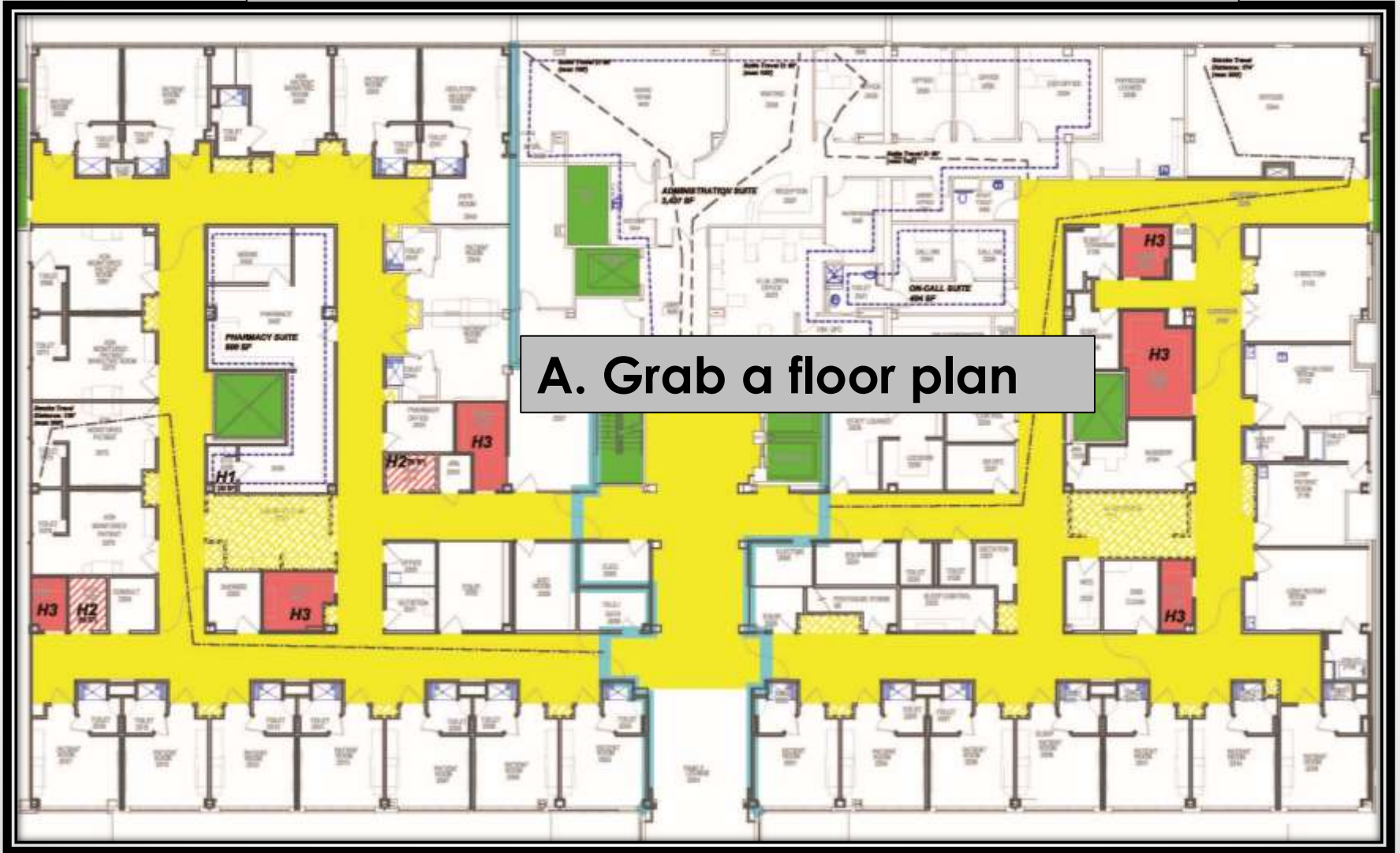
Enter unique area info (if within a room)



ASHE- RISK ASSESSMENT

Step 1 – List EVERY room & space in the facility

A. Grab a floor plan



ASHE- RISK ASSESSMENT

Step 1 – List EVERY room & space in the facility



ASHE- RISK ASSESSMENT

Systems Risk Assessment Tool										ASHE®				
Category Legend		Chapter 5				Chapter 6		Chapter 9		Chapters 10 and 11		Chapter 12		
Room Name	Room #	Space	Oxygen	Medical Air	Vacuum	WAGD	Electrical Systems	Heating	Ventilation	Air-Conditioning	Equipment	(See Equipment tab.)	Emergency Management	(See Emergency Management tab.)
4 Patient Room	2382													
5 Patient Room	2380													
6 Patient Room	2355													
7 Patient Room	2352													
8 Patient Room	2350													
9 Patient Room	2348													
10 Patient Room	2343													
11 Pharmacy Office	2401													
12 Pharmacy Process	2408													
13 Pharmacy Storage	2407													
14 Pharmacy Mixing	2402													
15 Patient Room	2368													
16 Patient Room	2370													
17 Patient Room	2372													
18 Patient Room	2375													

List every room



ASHE- RISK ASSESSMENT

“SYSTEMS WORKSHEET”

Step 2 – Evaluate & document the Severity of Failure for EACH utility system

Systems Risk Assessment Tool		ASHE	
1		Chapters 10 and 11	
2		Chapter 12	
Room #	Room Name	Space	Utility System
3			Oxygen Medical Air Vacuum W/AGD Electrical Systems Heating Ventilation Air-Conditioning Equipment (See Equipment tab.) Emergency Management (See Emergency Management tab.)
4	Patient Room	2382	
5	Patient Room	2380	
6	Patient Room	2355	
7	Patient Room	2352	
8	Patient Room	2350	
9	Patient Room	2348	
10	Patient Room	2343	
11	Pharmacy Office	2401	
12	Pharmacy Process	2408	
13	Pharmacy Storage	2407	
14	Pharmacy Mixing	2402	
15	Patient Room	2368	
16	Patient Room	2370	
17	Patient Room	2372	
18	Patient Room	2375	

Enter Risk Category (1-4) for each utility within the room/area

ASHE- RISK ASSESSMENT

Systems Risk Assessment Tool																	
Category Legend		Chapter 7					Chapter 8					Chapter 9					
Room Name	Room #	Space	Oxygen	Medical Air	Vacuum	WAGD	Electrical Systems				Heating	Ventilation	Air-Conditioning				
Patient Room	2382		2	2	2	0	2				2	3	3				
Patient Room	2380		2	2	2	0	2				2	3	3				
Patient Room	2355		2	2	2	0	2				2	3	3				
Patient Room	2352		2	2	2	0	2				2	3	3				
Patient Room	2350		2	2	2	0	2				2	3	3				
Patient Room	2348		2	2	2	0	2				2	3	3				
Patient Room	2343		2	2	2	0	2				2	3	3				
Pharmacy Office	2401		0	0	0	0	3				3	3	3				
Pharmacy Process	2408		0	0	0	0	3				3	3	3				
Pharmacy Storage	2407		0	0	0	0	3				3	3	3				
Pharmacy Mixing	2402		0	0	0	0	3				3	3	3				
Patient Room	2368		2	2	2	0	2				2	3	3				
Patient Room	2370		2	2	2	0	2				2	3	3				
Patient Room	2372		2	2	2	0	2				2	3	3				
Patient Room	2375		2	2	2	0	2				2	3	3				

You end up with a grid with many numbers



NFPA 99 EXAMPLE CATEGORY#

(HVAC SYSTEMS)

<i>Function</i>	<i>Heating</i>	<i>Cooling</i>	<i>Ventilating</i>	<i>Process</i>
Airborne infection isolation room	2	2	2	NA
Ambulance garage	NA	NA	3	NA
Biomedical waste holding	2	3	2	2
Bone marrow transplants	2	2	1	NA
Burn patient care rooms	2	2	2	NA
Business office/administration	4	4	4	4
Central sterile room	3	2	2	2
Class A surgical procedures	3	3	2	3
Class B surgical procedures	2	2	2	2
Class C surgical procedures	1	1	1	1
Critical care rooms (Category 1 room)	2	2	2	2
Emergency department trauma room	2	2	2	2
Intensive care	2	2	2	2
Medical-gas storage room	2	2	2	NA
Medical records				
Morgue				
Occupation therapy				
Oxygen transfilling				
PACU				
Patient education				
Pharmacy				

NFPA 99 provides a table of typical Risk Categories for HVAC systems

4. EVALUATE YOUR UTILITY SYSTEMS

Are you **PROVIDING** the required level of Utility Service?

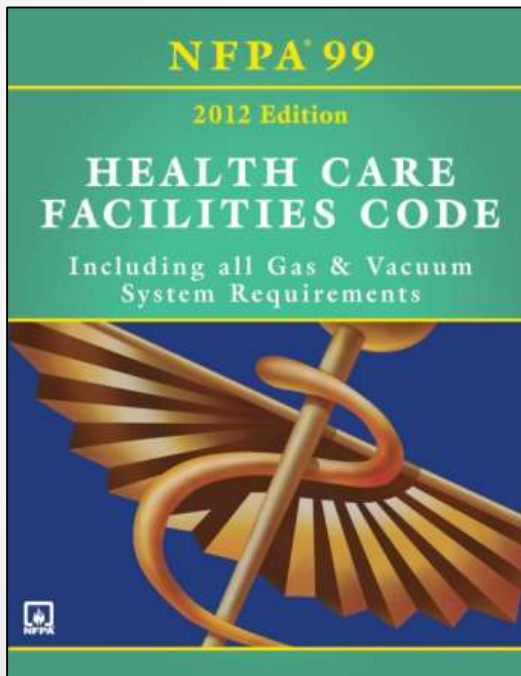
1. Must Know the Code

2. Must Have Data

3. Must Evaluate the Data

EVALUATE YOUR UTILITY SYSTEMS

1. Must Know the Code



For each UTILITY:

Must know the Code Requirements for each Category of Risk

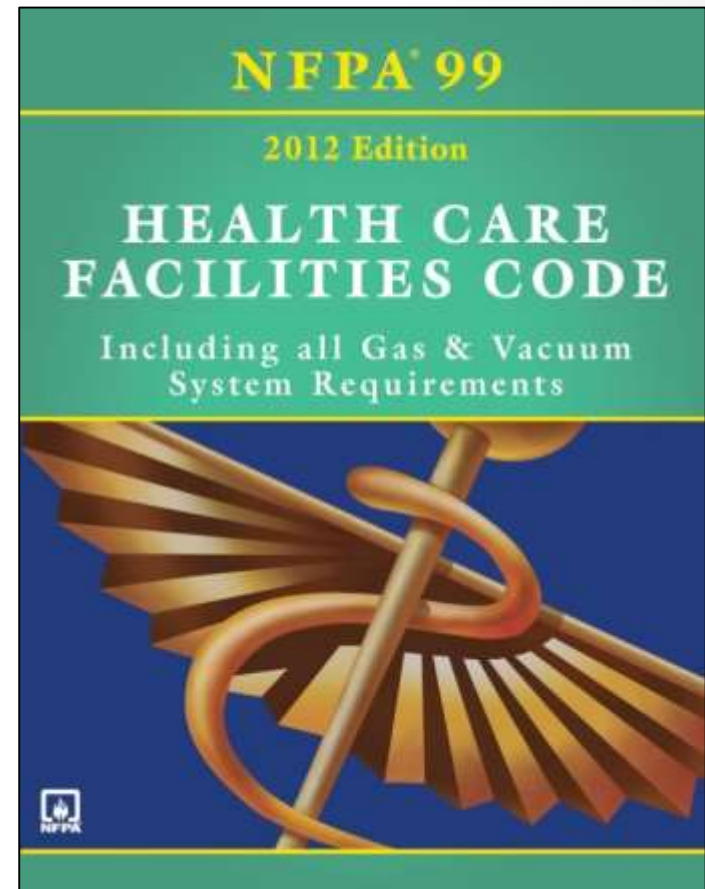
EVALUATE YOUR UTILITY SYSTEMS

**BUY the
BOOK!**

NFPA Cost: \$72.50

(book or pdf)

-10% NFPA member discount



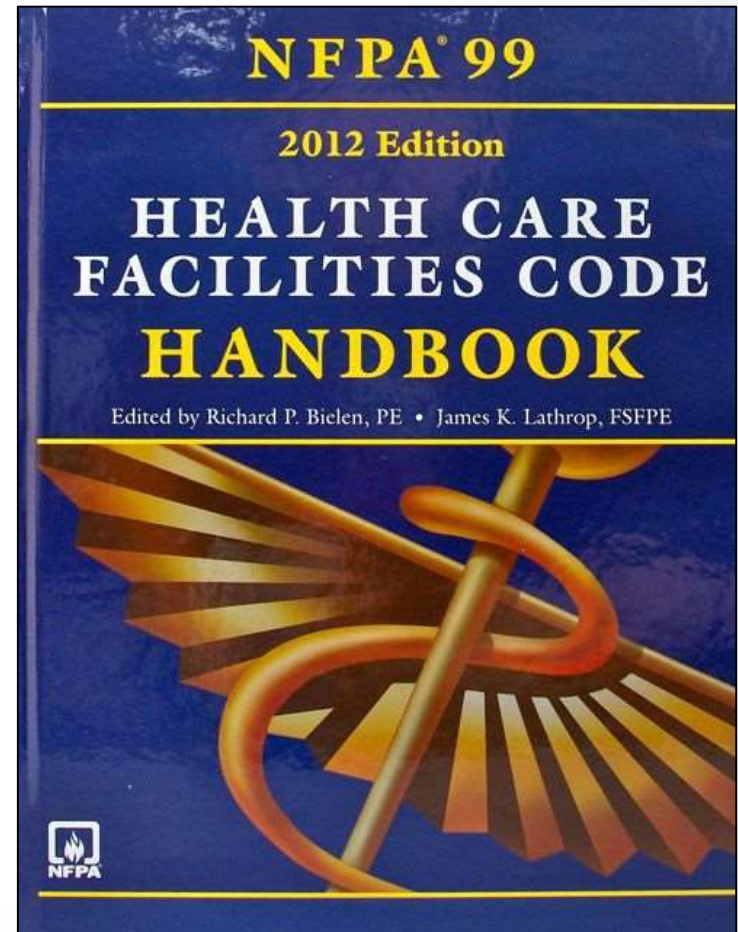
EVALUATE YOUR UTILITY SYSTEMS

BETTER:
BUY the
Hand-BOOK!

NFPA Cost: \$155.00

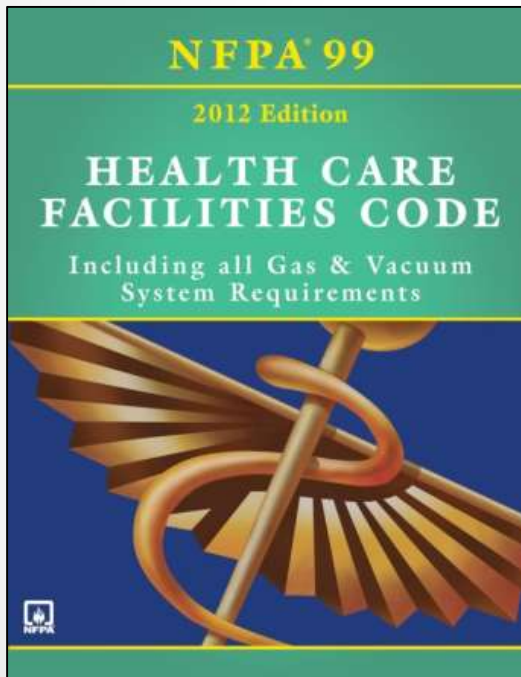
(book or pdf)

-10% NFPA member discount



EVALUATE YOUR UTILITY SYSTEMS

Chapters:



4 – Risk Assessment

5 – Gas & Vac

6 – Electrical Sys

~~**7 – Info Tech**~~

~~**8 – Plumbing**~~

9 – HVAC

4. EVALUATE YOUR UTILITY SYSTEMS

Are you PROVIDING the required level of Utility Service?

2. Must Have Data

(Data Turns Opinion into Fact)

Room #	Space	Oxygen	Medical Air	Vacuum	SPAGD	Electrical Ty	Drain	Phone	Nurse Call	Cable TV	Portable W	Non-Portab	Water Heat	Water Con	Non-Medic	Black Wash	Grey Wash	Clear Wash	Heating	Ventilation	Air Control	Equipment	Fire Exting	Emergency
2382		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			
2380		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			
2355		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			
2370		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			
2372		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			
2375		2	2	2	0	2	0	0	2	2	2	0	2	0	0	0	0	0	2	2	2			

4. EVALUATE YOUR UTILITY SYSTEMS

Are you PROVIDING the required level of Utility Service?

Data Collection is a

HUGE TASK !

Room Name	Room #	Space	Oxygen	Medical Al	Pharm	W AGD	Electrical Ty	Desk	Phone	Nurse Call	Cable TV	Portable W	Non-Pat	Water Heat	Water Con	Non-Medic	Black Wash	Grey Wash	Clear Wash	Heating	Ventilation	Air-Cond	Equipment	Lin Equip	Emergency
17 Patient Room	2172		2	2	2	0	2	0	3	2	3	2	0	3	3	0	0	0	0	2	3	3			
18 Patient Room	2173		2	2	2	0	2	0	3	2	3	2	0	3	3	0	0	0	0	2	3	3			

EVALUATE YOUR UTILITY SYSTEMS

Recommendations:

- Gas & Vac
- Electrical Sys
- HVAC

1. Prioritize which system to start with
&
Concentrate on it

2. Delegate
(if you have staff/experts)

EVALUATE YOUR UTILITY SYSTEMS

Prioritize, based on:

1. **Worst Failure Experience?**
2. **Most Patient Complaints?**
3. **Most #1 Risk Categories?**



EVALUATE YOUR UTILITY SYSTEMS

Prioritize, based on:

4. Ones TJC/CMS tend to pick on?

- ventilation
- electrical

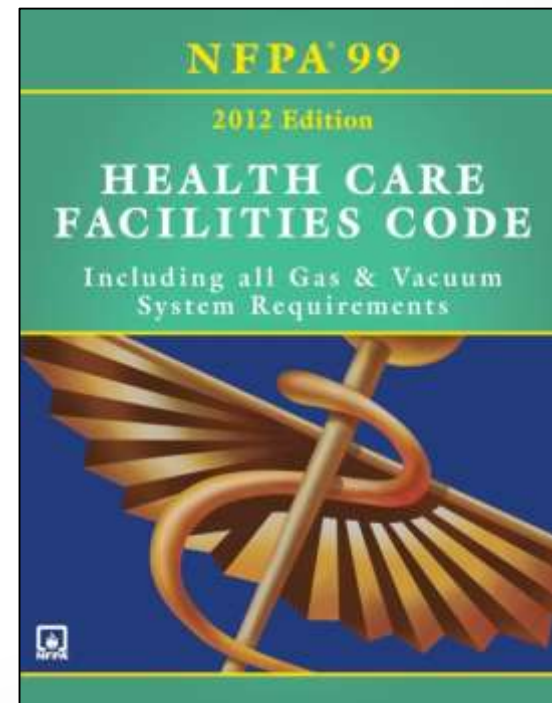


EVALUATE YOUR UTILITY SYSTEMS

Prioritize, based on:

5. Clearest Code Direction? (med gas)

Chapter 5 is the most organized chapter according to Risk Categories



EVALUATE YOUR UTILITY SYSTEMS

CLEAREST CODE DIRECTION: NFPA 99 – CHAPTER 5 - GAS & VACUUM

1 - High
Impact

2 - Minor
Impact

3 - Slight
Impact

<i>Topic</i>	<i>Category 1 Systems</i>	<i>Category 2 Systems</i>	<i>Category 3 Systems</i>
Applicability	5.1.1	5.2.1	5.3.1
Nature of Hazards	5.1.2	5.2.2	5.3.2
Sources	5.1.3	5.2.3	5.3.6.21/5.3.7
Valves	5.1.4	5.2.4	5.3.6.19
Station Outlet/Inlets	5.1.5	5.2.5	5.3.6.18
Manufactured Assemblies	5.1.6	5.2.6	NA
Surface-Mounted Medical Gas Rails (MGR)	5.1.7	5.2.7	NA
Pressure and Vacuum Indicators	5.1.8	5.2.8	NA
Warning Systems	5.1.9	5.2.9	5.3.6.22
Distribution	5.1.10	5.2.10	5.3.7/5.3.8

EVALUATE YOUR UTILITY SYSTEMS

CLEAREST CODE DIRECTION: NFPA 99 – CHAPTER 5 - GAS & VACUUM

5.X.14 - MAINTENANCE

Inventory includes all sources, control valves, alarms & mfr assemblies

Must have scheduled inspections based on risk assessment & OEM recommendations (minimum annual). Very prescriptive lists of what must be included.

Maintainers must be qualified by training or credentialing

EVALUATE YOUR UTILITY SYSTEMS

Prioritize, based on:

6. Hazard Vulnerability Assessment (HVA)?

DQA Tool (Instructions & Spreadsheet) Available for FREE

Wisconsin Department of Health Services
Hazard Vulnerability Assessment (HVA)
Instructions for Long Term Care Facilities (LTCFs)




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EVALUATE YOUR UTILITY SYSTEMS

Prioritize:

6. Hazard Vulnerability Assessment?

Name of Long Term Care Facility (LTCF):															
List of Participating Partners: (Other LTCFs, Fire, Law, Emergency Management, Human Services, Health Department, Family Care)															
NVA Meeting Date(s):															
HAZARD VULNERABILITY ASSESSMENT TOOL	PROBABILITY	HUMAN IMPACT	LTCF SERVICE IMPACT	COMMUNITY IMPACT	LTCF PROPERTY IMPACT	LTCF BUSINESS IMPACT	MITIGATION		PREPAREDNESS		RESPONSE		RECOVERY	RISK	
	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	1 = High (unacceptable) 2 = Moderate (1-10 years) 3 = Low (10-20 years)	EXISTING LTCF	OTHER LTCF	EXISTING LTCF	OTHER LTCF	EXISTING LTCF	OTHER LTCF	EXISTING LTCF	OTHER LTCF
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Natural Hazard Scenarios															
Riskless															0%
Cold - extreme & prolonged															0%
Earthquake															0%
Flood - flash due to rain and local terrain															0%
Heat - extreme & prolonged															0%
Ice Storm															0%
Landslide															0%
Tornado															0%
Wild Fire															0%
Other															0%
Man-Made Hazard Scenarios															
Airplane Crash															0%
Biological / Infectious Outbreak															0%
Civil Disturbance - adjacent to facility															0%
Communication Disruption - major & prolonged															0%
Computer Failure - system															0%
Explosion - adjacent to facility															0%
Explosion - within facility															0%
Flood - dam or reservoir failure															0%
Fuel Shortage - for facility operation															0%
HAZMAT Release - from fixed facility															0%
HAZMAT Release - from transportation															0%
Nuclear Facility Incident - within 10 or 50 miles															0%
Power Outage - major & prolonged															0%
Supply Disruption															0%
Water Supply Contamination - municipal															0%
Water System Failure - facility or Municipal															0%
Other															0%

Available for FREE at
Lauzon-LSC.com (Forms Page)

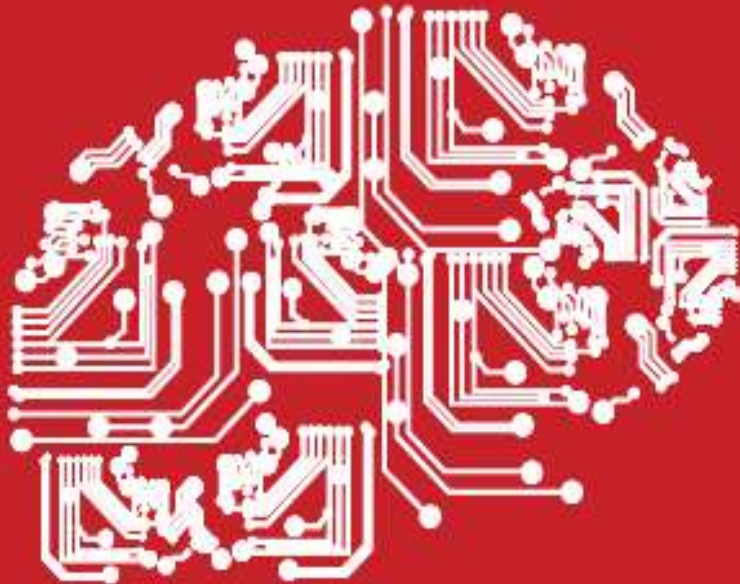
EVALUATE YOUR UTILITY SYSTEMS

- **Gas & Vac**
- **Electrical Sys**
- **HVAC**

**Once you've
Chosen a Utility to
evaluate:**

GATHER YOUR DATA !

EVALUATE YOUR UTILITY SYSTEMS



Data
driven
decisions

SOURCES OF RISK DATA

(OUTSIDE GENERATED)

Regulatory Inspections:

- Fire Department,
- Joint Commission,
- CMS
- DQA

Regulatory Updates:

- AHJ,
- AHA/WHEA
- Newsletters

Product Recalls:

- Manufacturers,
- ECRI
- Listserves

SOURCES OF RISK DATA

(ORGANIZATION GENERATED)

Rounding:

- Executive Rounds,
- EOC Rounds,
- Facility Rounds



Incident Reports:

- Staff Concerns,
- Leader/Patient/Visit or Communication

Safety Reports:

- Patient Safety,
- Employee Injury,
- Reports of Concerns

Opinion Surveys:

- Knowledge Based Questions,
- Targeted Questions

Performance Monitors:

- Committee Minutes,

SOURCES OF RISK DATA

(PLANT OP GENERATED)

Inspection Logs:

- Biomed,
- Utilities,
- Life Safety

Construction Reports:

- ILSM,
- ICRA,
- Daily Constr Audits

Performance Monitors:

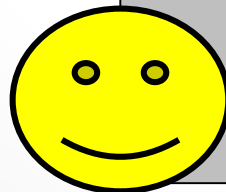
- Vender Reports
- PM Reports
- Work Orders

Drill Critiques:

- Fire Drills,
- After Action Reports,
- Disaster Drill Findings

Air Quality Reports:

- All/PE Air Exchange,
- All/PE Pressurization
- Particle Counts



SOURCES OF RISK DATA

(TYPICAL FACILITY INSPECTION REPORTS)

1 - GENERAL & BUILDING
1A - ALL REPORTS HAVE BASIC INFO
1B - FIRE DOORS
1C - LOCAL FIRE DEPT INSPECT (LTC only)
1D - FLAME SPREAD DOC
1E - ELEV RECALL-MONTHLY
1F - LIFE SAFETY PLAN
1G - CATEGORICAL WAIVERS

SOURCES OF RISK DATA

(TYPICAL FACILITY INSPECTION REPORTS)

2 - SUPPRESSION -- (#1 CMS/TJC Cite)

2A - SPRINKLER - MONTHLY

2B - SPRINKLER - QUARTERLY

2C - SPRINKLER - QTRLY (Dry/PreAction)

2D - SPRINKLER - SEMI-ANNUAL

2E - SPRINKLER - ANNUAL

2F - SPRINKLER - 5 YR

2G - STANDPIPE-QUARTERLY

2H- STANDPIPES-5 Yr

2I - FIRE PUMP-WEEKLY

2J - FIRE PUMP-ANNUAL

2K - FIRE EXTINGUISHER-MONTHLY & A

2L -KITCHEN HOOD CLEANING-SEMI A

2M - HOOD EXTINGUISH SYS-SEMI A

2N - HYDRANTS, PRIVATE-ANNUAL

2O - CLEAN AGENT SYS -SEMI ANNUAL

2P - CLEAN AGENT SYS -ANNUAL

Sprinkler
(NOT risk based)
Always #1

SOURCES OF RISK DATA

(TYPICAL FACILITY INSPECTION REPORTS)

3-FIRE ALARM -- (#1 CMS/TJC Cite)

3A - ALARM TRANSMIT TEST-WEEKLY

3B - FIRE ALARM-SEMI ANNUAL

3C - FIRE ALARM - ANNUAL

3D - SMOKE DETECTOR SENSITIVITY-2Yr

4-ELECTRICAL-- (#3 CMS Doc Cite)

4A - GENERATOR-WEEKLY

4B - GENERATOR-MONTHLY

4C - GENERATOR LOAD BANK-Annual

4C - GENERATOR LOAD BANK-3 yr

4D - NAT GAS Reliability Letter

4E -EXIT SIGNS-MONTHLY

4F - BATTERY LIGHTS-MONTHLY & A

4G - STORED EMERG POWER SUPPLY

4H - ISOLATED POWER-MONTHLY

4I - ISOLATED POWER-SEMI ANNUAL

4J - ELECTRICAL OUTLETS (Hospital)

Fire Alarm
(NOT risk based)
Always #1

SOURCES OF RISK DATA

(TYPICAL FACILITY INSPECTION REPORTS)

5-MECHANICAL
5A- FIRE & SMOKE DAMPERS
5B - EYEWASH & SHOWERS (OSHA)
5C - MEDICAL GASES

6-FIRE RESPONSE-- (#2 CMS Cite)
6A - FIRE RESPONSE PLAN
6B - FIRE DRILLS
6C - REPORT OF FIRES

SOURCES OF RISK DATA

Possible Ventilation Data Sources:

1. Inventory of Rooms needing Negative Pressure *
2. Inventory of Rooms needing Positive Pressure *
3. Particle Count Data
4. Inspection of Pressure Relationships *
5. Filtration Study
6. Air Change & Fresh Air Study
7. Temperature Study
8. Test & Balance Reports
9. Odor Evaluation
10. Grill Cleanliness
11. Humidity Study
12. Cooling Tower Biological Study

* TJC Tends to look for these evaluations

Common Ventilation Data Sources:

Your Logo Here

Pressure Relationship Testing Monthly Inspection

M

Neg/Pos
Pressure
Relationships

Facility:

Page 3

Inspector's Signature: DATE INSPECTED

DEFICIENCY & CORRECTION SUMMARY

Instructions: This supplemental sheet describes the issues found during an inspection of the facility that could not be described on the inspection report due to space restrictions, and should always be attached to the end of the actual inspection report. Always refer to the actual inspection report to view the full inspection. All deficiencies must be acted upon/corrected as soon as possible after discovery, and the item be re-inspected/tested to ensure compliance.

Floor	Room Number	Room Name	Describe Deficiency	Description of Correction	Who Repaired & Re-Test	Date of Repair & Retest

Common Ventilation Data Sources:

Your Logo Here

Pressure Relationship Testing Monthly Inspection

M

Neg/Pos
Pressure
Relationships

Facility:

Page 3

Inspector's Signature:

DATE INSPECTED

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Floor	Room Number	Room Name	Describe Deficiency	Description of Correction	Who Repaired & Re-Test	Date of Repair & Retest



Common Ventilation Data Sources:

CEILING - SEMI-ANNUAL INSPECTION

Your Logo Here

Facility:

S

Ceiling
Inspection

Page 1

INSPECTOR Name:

INSPECTION DATE

INSPECTION Inspect the ceiling system of each room and corridor in the entire facility for the following. Hole-type of issues are usually cited as a sprinkler violation; stains & dust for inadequate maintenance or infection control;

TOOLS: a. Strong flashlight to view dark areas and shine on sprinklers

b. Portable HEPA back-pack vacuum cleaner w/hose to clean dust from sprinklers, grills & door frames

c. Set of Ledger Sized Life Safety floor plans. If a space has no issues, place a small check mark in the space;

If a problem that can't be immediately corrected mark the space with #1-#7 from below & Enter on last page

1. **PENETRATIONS:** Check ceiling tiles and smooth ceilings for gaps of any size around conduits, cable & pipe penetrations,

2. **HOLES IN CEILING:** Check ceilings for damaged tiles, tiles that are out of the grid, tiles that are sagging or bowed and leave a visible dark crack.

3. **STAINED CEILING:** Check ceilings for stains or mold

4. **SPRINKLER DUST:** Check sprinklers for any that contain lint, dust, rust, corrosion, paint, or anything hanging from any part of the sprinkler

5. **HVAC GRILL DUST:** Check supply, return, and exhaust grills for any accumulated dust in the grill or adjacent ceiling. This may trigger a full facility-wide concern over your infection control practices. This is especially significant if found in the kitchen, clean supply areas, or acute care areas, and cause the need to clean the interiors of major portions of the duct system.

6. **DOOR FRAME DUST:** Check for dust accumulation around the stops of door frames of support spaces, especially mechanical & electrical rooms, janitor and other small closets.

7. **SMOKE DETECTORS:** Check that smoke detectors are at least 3' away from any supply, return, or exhaust grill and at least 5' away from the tip of any ceiling mounted fan.

SOURCES OF RISK DATA

Common Electrical Data Sources:

1. Shutdown Policy
2. Equipment Labeling Study *
3. Panel Labeling Evaluation
4. Receptacle Inspection
5. Strip Plug Inspection *
6. Emergency Lighting Study
7. Receptacle Study
8. Generator Exercising
9. Main Breaker Testing
10. Battery Operated Light Inspection
11. Exit Light Inspection
12. Isolated Power Testing

* TJC Tends to look for these evaluations

Common Electrical Data Sources:



GENERATOR MONTHLY EXERCISE						M	GENERATOR EXERCISE (Kw calc)	
Your Logo Here		Facility: <input style="width: 100%;" type="text"/>						
Nameplate Information								
Generator ID:	<input style="width: 100%;" type="text"/>	Generator KW:	<input style="width: 100%;" type="text"/>	FLA:	<input style="width: 100%;" type="text"/>	Ref: NFPA 110-99 §6-3, 6-4 TJC EC.02.05.07 EP 4,5,6		
Generator Loc:	<input style="width: 100%;" type="text"/>	Phase:	<input style="width: 100%;" type="text"/>	Volt:	<input style="width: 100%;" type="text"/>			
Fuel:	<input style="width: 100%;" type="text"/>	Power Factor:	<input style="width: 100%;" type="text"/>					
INSPECTOR Name:			EXERCISE DATE:					
PRIOR TO START		OBSERVATIONS				Result		
Check Belt Condition & Tension (fan, pump, alt)		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Check Battery Charger & Rate		(located at ATS)				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Check Battery Equalize Charge		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Oil Level Reading		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
GENERATOR EXERCISE INFO		OBSERVATIONS		Difference	Pass If:	Result*		
Prior Exercise:		<input style="width: 100%;" type="text"/>			at least 20, but < 40 days from prior	Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Time 1st ATS Test Button Pushed		<input style="width: 100%;" type="text"/>	AM/PM	Mn	at least 30 min	Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Time 1st ATS Transferred Back to Normal		<input style="width: 100%;" type="text"/>	AM/PM					
Time the Generator Shut Down		<input style="width: 100%;" type="text"/>	AM/PM	Mn	at least 5 min	Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
# Seconds between Pushing Test & 1st ATS Transfer (Use stopwatch)		<input style="width: 100%;" type="text"/>		Seconds	max 10 sec	Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Circle Name of ATS Used to Start Gen:		ATS1	ATS2	ATS3	ATS4	(rotate ATS used to start)		
Name of any ATS NOT electrically transferred		<input style="width: 100%;" type="text"/>				(ALL ATS must be transferred each month)		
						Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
OPERATIONAL CHECKS		OBSERVATIONS				Result		
Oil Pressure:		<input style="width: 100%;" type="text"/>		psi		Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Oil Temp:		<input style="width: 100%;" type="text"/>		° F		Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Water Temperature:		<input style="width: 100%;" type="text"/>		° F		Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Exhaust Temperature:		<input style="width: 100%;" type="text"/>		° F		Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Air Intake Louver Opened Properly?		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Radiator Fan Cycled On/Off?		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Remote Annunciator Indicates Operation?		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
Generator Control in "Auto" Position After Run?		<input style="width: 100%;" type="text"/>				Pass <input type="checkbox"/> Fail <input type="checkbox"/>		
GENERATOR LOAD		OBSERVATIONS				Result*		
Amp L1	<input style="width: 100%;" type="text"/>	Volt, L1-2	<input style="width: 100%;" type="text"/>	x	<input style="width: 100%;" type="text"/>	x 1.713	+ 1000 =	A
Amp L2	<input style="width: 100%;" type="text"/>	Volt, L2-3	<input style="width: 100%;" type="text"/>	Avg Amps	x Avg Volts	x Power Factor (typ. .8)	x sq root of 3	= Kilo-watt LOAD
Amp L3	<input style="width: 100%;" type="text"/>	Volt, L3-1	<input style="width: 100%;" type="text"/>				x .3	= B
Avg (Sum/3)	<input style="width: 100%;" type="text"/>	Average	<input style="width: 100%;" type="text"/>			nameplate KW		If A>B = Pass Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Common Electrical Data Sources:

Receptacle Testing

Your Logo
Here

Facility:

A

Receptacle
Testing

Inspector's Signature:

DATE INSPECTED

Page 1

Receptacles in patient care areas (normal & emergency powered) must be testing after initial installation, replacement, or service, per NFPA 99-1999 ed, §3-3.3 and 3-3.4 and at intervals defined by the facility based on documented performance data (with non-hospital grade tested at least annually, per NFPA 99-1999 ed, §3-3.4.2.3

NFPA 99-1999

§3-3.3.3

TJC EC: none

- Visually inspect the device and cover that they are intact and in good condition (enter Pass/Fail evaluation in Col "D")
- Use a receptacle tester and verify continuity of the ground and polarity (enter Pass/Fail evaluation in Col "E" & 'F')
- Use a ground blade tension tester and verify tension is above 4 oz. (enter Pass/Fail evaluation in Col "G")

IF ANY TEST FAILS, ENTER IN COL "H" A FULL DESCRIPTION OF ISSUE, METHOD & DATE OF CORRECTION & WHO CORRECTED

A	B	C	D	E	F	G	H
ROOM #	ROOM NAME	DEVICE #	Physical Condition Pass/Fail	Ground Continuity Pass/Fail	Polarity Check Pass/Fail	Ground Retention > 4 oz Pass/Fail	If Fail, Describe Corrective Action, Who & Date
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							



4. EVALUATE YOUR UTILITY SYSTEMS

Are you PROVIDING the required level of Utility Service?

Room #	Space	Oxygen	Medical Air	Vacuum	SPAGD	Electrical	Drain	Phone	Nurse Call	Cable TV	Portable W	Non-Portab	Water Heat	Water Con	Non-Medic	Black Wash	Grey Wash	Clear Wash	Heating	Ventilation	Air-Condition	Equipment	Fire Exting	Emergency
4 Patient Room	2382	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
5 Patient Room	2380	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
6 Patient Room	2355	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
7 Patient Room	2352	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
8 Patient Room	2350	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
9 Patient Room	2348	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
10 Patient Room	2343	2	2	2	0	2	0	2	2	2	2	0	2	2	0	0	0	0	2	2	2			
11 Pharmacy Office	2401	0	0	0	0	2	2	2	0	0	2	0	2	2	0	0	0	0	2	2	2			

3. Must Evaluate the Data

4. EVALUATE YOUR UTILITY SYSTEMS

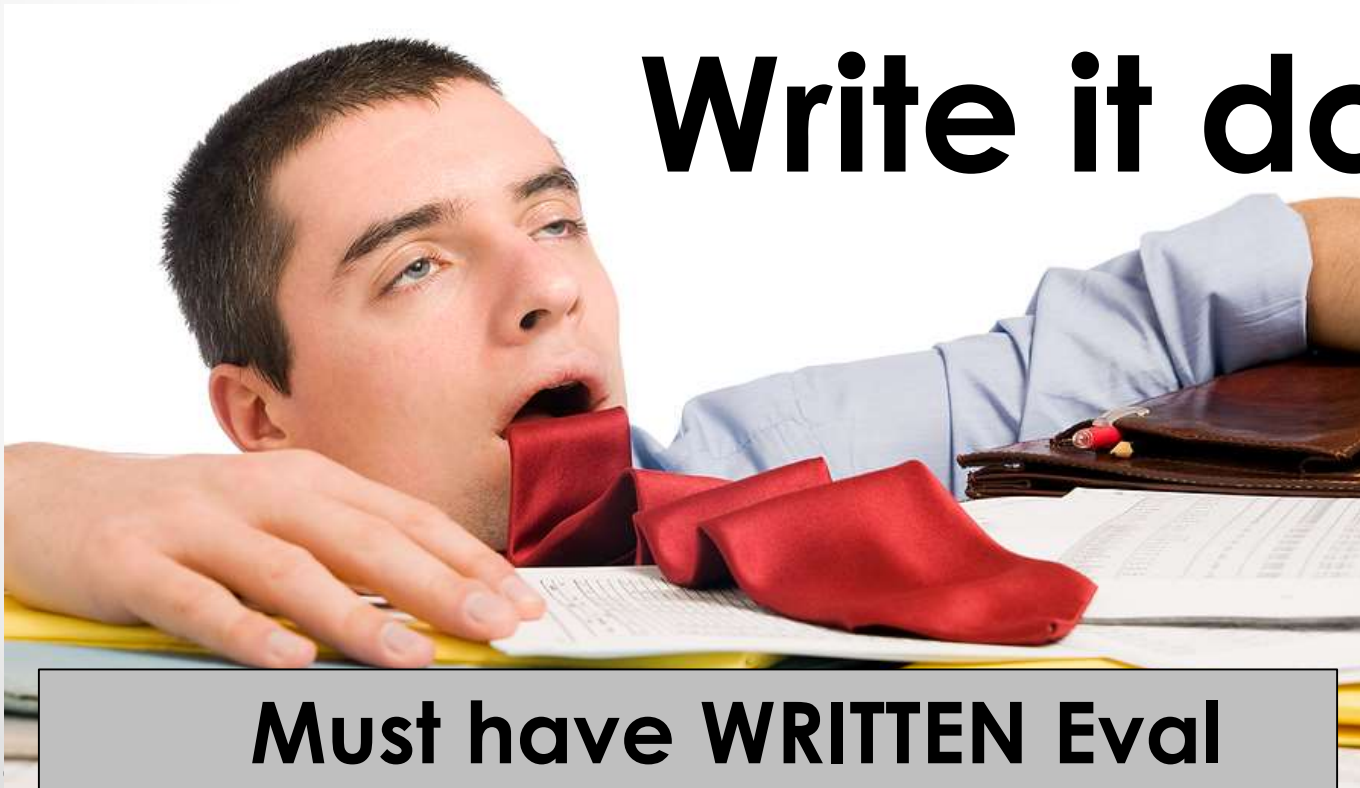
Ask yourself:

- **What is the data telling me?**
- **Why is it happening?**
- **Do I need more data?**
- **How can I improve the sys?**
- **Is this failure an opportunity?**
- **Do I comply with the code?**

4. EVALUATE YOUR UTILITY SYSTEMS

Now, the hard part ...

Write it down!



Must have WRITTEN Eval

4. EVALUATE YOUR UTILITY SYSTEMS

Documentation

If it isn't documented, it didn't happen

5. REPORT FINDINGS

The hard part is done

Now, its downhill



5. REPORT FINDINGS

Report findings to:

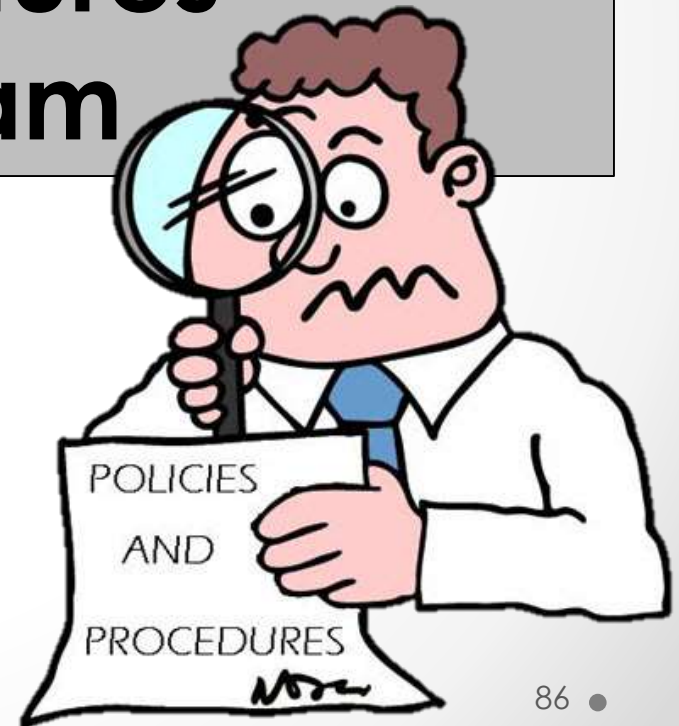
1. Executive Team
2. EoC Committee (TJC)
3. Safety Committee



REPORT FINDINGS

Update:

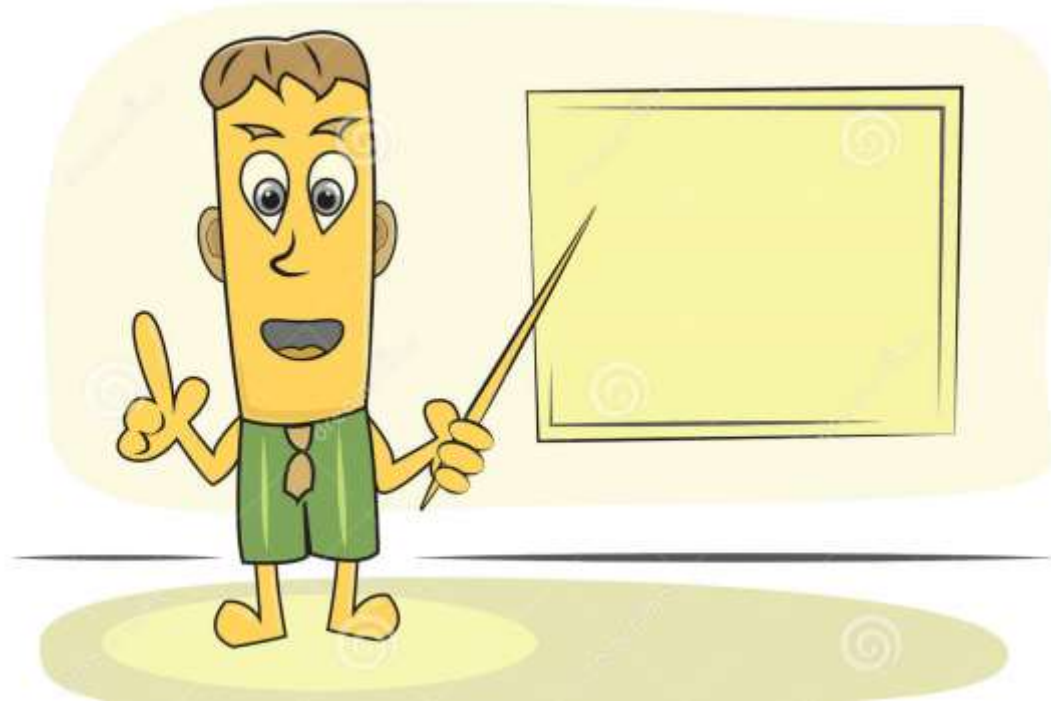
- 1. Management Plan**
- 2. Policies & Procedures**
- 3. Inspection Program**



REPORT FINDINGS

Be Able to Discuss Findings

- 1. At Committee Meetings**
- 2. With Surveyors**





Utility Risk Assessments

- 1. Why a Risk Assessment?**
- 2. NFPA 99 Risk Assessment**
- 3. ASHE Tool – Assess Your Needs**
- 4. Evaluate Your Utilities (Have Data)**
- 5. Report Your Findings**



WISCONSIN HEALTHCARE ENGINEERING ASSOCIATION
Dedicated to Excellence in Healthcare Engineering

Utility Risk Assessments

