Interim Life Safety Assessments and Infection Prevention Assessments

Wisconsin Healthcare Engineering Association

Healthcare Construction
ILSM and ICRAs

Wisconsin Healthcare Engineering Association

PRESENTED BY

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PROGRAM PURPOSE

An overview of the components of:

Interim Life Safety Measures

Infection Control Risk Assessments

The program will discuss the importance of understanding

1. **What you are doing?**
2. **Where you are doing it?**
3. **For how long?**

and the impacts on the patient care environment.

PROGRAM AGENDA

Section 1 – Increased Risks in Health Care Facilities

Section 2 – ICRA (Infection Control Risk Assessment)

Section 3 – Life Safety Principles

Section 4 – ILSM (Interim Life Safety Measures)

Section 1:
Increased Risks Working in Healthcare Facilities

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STATISTICAL DATA

- Approximately 90,000 patients die in hospitals each year due to hospital acquired infections.
- Estimated 1 in 20 patients will become infected in the hospital.
- Estimated Total Cost for hospital acquired infections exceed $6 Billion per year.

WHY INFECTIONS ARE COMMON:

- Surgical procedures by penetrating the skin can affect a persons natural defenses with cutting and inserting foreign items into the body.
- Persons are more at risk due to compromised immune system.
- Elderly and young simply do not have the ability to fight off common sources of infection.

FURTHER ANALYSIS OF INFECTIONS:

- 90% of acquired infections are contact transmission - direct contact of infected source.
- 10% of acquired infections are non contact or airborne.
- Of the 10% of airborne infections, only a few are directly related to facility activities / construction.

However, all sources of infections must be addressed for the safety of the patient.

WHAT CONTRIBUTES TO INFECTIONS?

Molds:

100’s of thousands types of molds are present

Only a few are dangerous to people. Examples of major types:

- Histoplasmosis
- Coccidioides
- **Aspergillus**
- Blastomycosis

How molds cause infections:

Mold is a plant, secretes chemicals, and spores

WHAT CAUSES INFECTIONS?

- Lack of knowledge to implement process to reduce risks to patients.
- Lack of adequate barriers/safeguards.
- Lack of control of dust/debris.
- Lack of communication & coordination with occupants.
- Improper shutdowns of systems.
- Improper start up of systems

ASPERGILLUS

- Found frequently (present almost everywhere)
- Extremely common in:
  - Soil, Decaying matter, wet plaster and gypsum
- Demolition dust carries and releases spores into the environment (especially if previously wet)
- 1993 - 4 deaths due to an elevator project
- 1999 - 4 deaths due to construction dust in a Rheumatology Unit project
- 2009 – 3 pediatric oncology deaths

DECREASING MOLD CONCENTRATIONS

- Filtration - HEPA filter units
- Cleaning and Decontam
- 10 % Bleach is very effective
  - Safe work methods
  - Wetting demolition debris Transporting debris in covered containers and in non patient occupied routes
  - Barriers between patients and work areas

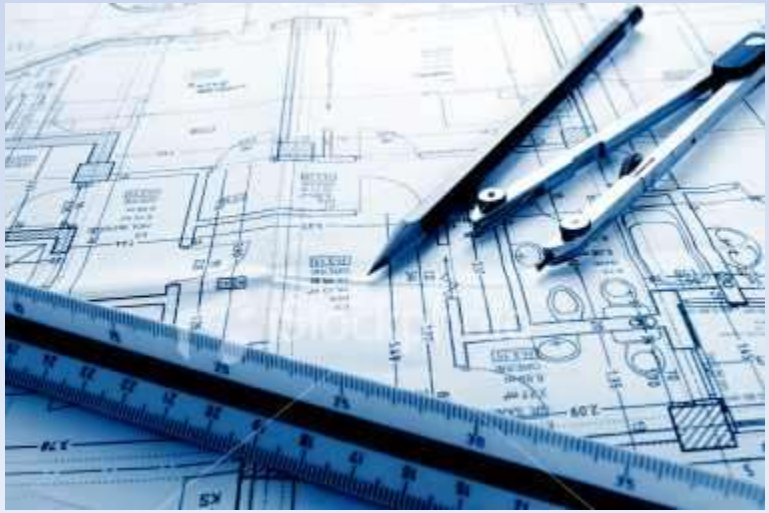
Portals of Exit/Entry

- Skin - Cuts, Tears, Abrasions
- Mouth
- Respiratory System

FOLLOW THE PLAN

Develop the Infection Control Risk Assessment

- Implement measures as defined to limit liability
- Monitor barriers/measures for protection of patients
- Review the plan as the work progresses
- Know and follow the plan
- Every person, every task, every day!



DEFINE EXPECTATIONS

Define barriers

- Types and locations
- Who is responsible to construct?
- Who is responsible to maintain?
- Define when erected
- Define when can be removed

CLARIFY EXPECTATIONS

Work methods

- Negative pressure verification
- Dust/debris control and removal process
- Define cleaning methods/frequencies
- How to turn off/on systems

Time Schedules

- Noise/vibrations
- Closures/system shut downs

PERSONAL PROTECTIVE EQUIPMENT

Minimized exposure decreases chance for infection

- Respirators
- Dust Masks
- Gloves
- Eye Protection
- Clothes

HANDWASHING

Single most effective means to eliminate transmission of infections,

At start of shift, prior to meals or eating, after using restroom, and at end of shift.

Protect you, your family, our patients!

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PROGRAM AGENDA

Section 1 – Increased Risks in Health Care Facilities

Section 2 – ICRA (Infection Control Risk Assessment)

Section 3 – Life Safety Principles

Section 4 – ILSM (Interim Life Safety Measures)

Section 2:
Infection Control Risk Assessment (ICRA)

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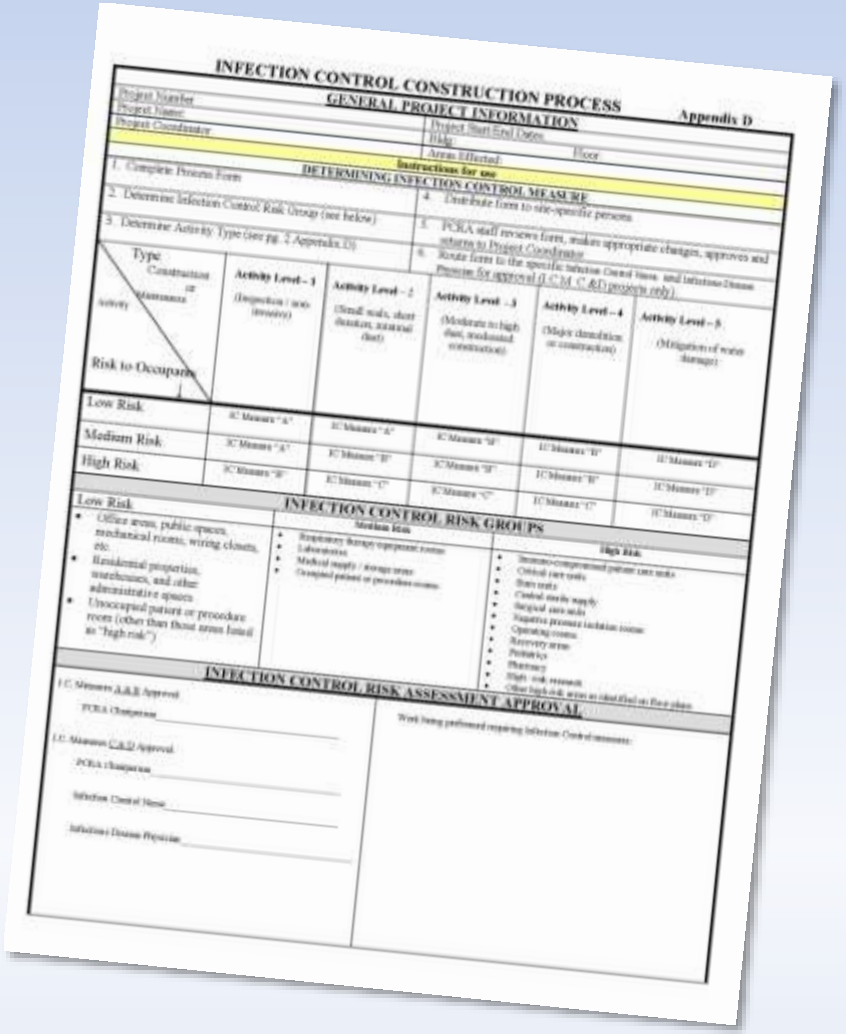
INFECTION CONTROL RISK ASSESSMENT



INFECTION CONTROL CONSTRUCTION PROCESS

Appendix D

GENERAL PROJECT INFORMATION

Project Number:
Project Name:
Project Coordinator:
Project Start/End Dates:
Bldg:
Floor
Areas Effected:

Instructions for use

DETERMINING INFECTION CONTROL MEASURE

1. Complete Process Form
2. Determine Infection Control Risk Group (see below)
3. Determine Activity Type (see pg. 2 Appendix D)
4. Distribute form to site-specific persons
5. PCRA staff reviews form, makes appropriate changes, approves and returns to Project Coordinator
6. Route form to the specific Infection Control Issues and Infectious Disease Physician for approval (I.C.M.C.&D) (projects only)

Type: Construction or Maintenance activity / Risk to Occupants	Activity Level – 1 (Inspection / non-invasive)	Activity Level – 2 (Small scale, short duration, minimal dust)	Activity Level – 3 (Moderate to high dust, uncontained contamination)	Activity Level – 4 (Major demolition or construction)	Activity Level – 5 (Mitigation of water damage)
Low Risk	IC Measures "A"	IC Measures "A"	IC Measures "B"	IC Measures "B"	IC Measures "D"
Medium Risk	IC Measures "A"	IC Measures "B"	IC Measures "B"	IC Measures "C"	IC Measures "D"
High Risk	IC Measures "B"	IC Measures "C"	IC Measures "C"	IC Measures "C"	IC Measures "D"

INFECTION CONTROL RISK GROUPS

Low Risk
- Office areas, public spaces, mechanical rooms, wiring closets, etc.
- Residential properties, warehouses, and other administrative spaces
- Unoccupied patient or procedure room (other than those areas listed as "high risk")

Medium Risk
- Respiratory therapy equipment rooms
- Laboratories
- Medical supply / storage areas
- Occupied patient or procedure rooms

High Risk
- Immunocompromised patient care units
- Critical care units
- Burn units
- Central sterile supply
- Surgical care units
- Negative pressure isolation rooms
- Operating rooms
- Recovery areas
- Pediatrics
- Pharmacy
- High risk research
- Other high-risk areas as identified on floor plans

INFECTION CONTROL RISK ASSESSMENT APPROVAL

I.C. Measures A&B Approval
PCRA Chairperson
I.C. Measures C&D Approval
PCRA Chairperson
Infection Control Nurse
Infectious Disease Physician

Work being performed requiring Infection Control measures:

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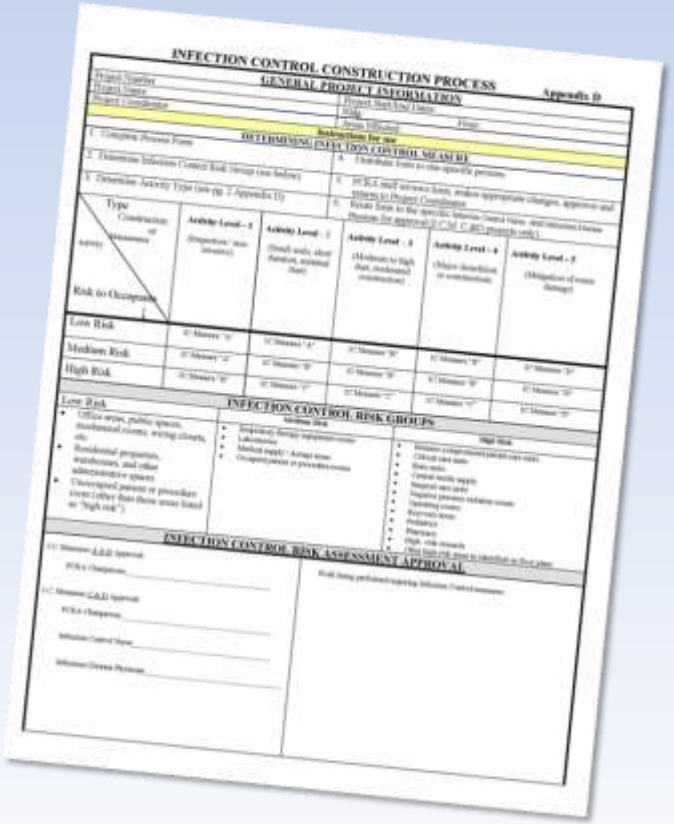
WHAT IS AN ICRA?

An Infection Control Risk Assessment is a tool devised to protect patients from infections while in the hospital during construction and maintenance activities.

Determines what measures need to be implemented during construction or maintenance activities in an occupied healthcare facility.


INFECTION CONTROL CONSTRUCTION PROCESS

GENERAL PROJECT INFORMATION

INFECTION CONTROL RISK GROUPS

INFECTION CONTROL RISK ASSESSMENT APPROVAL

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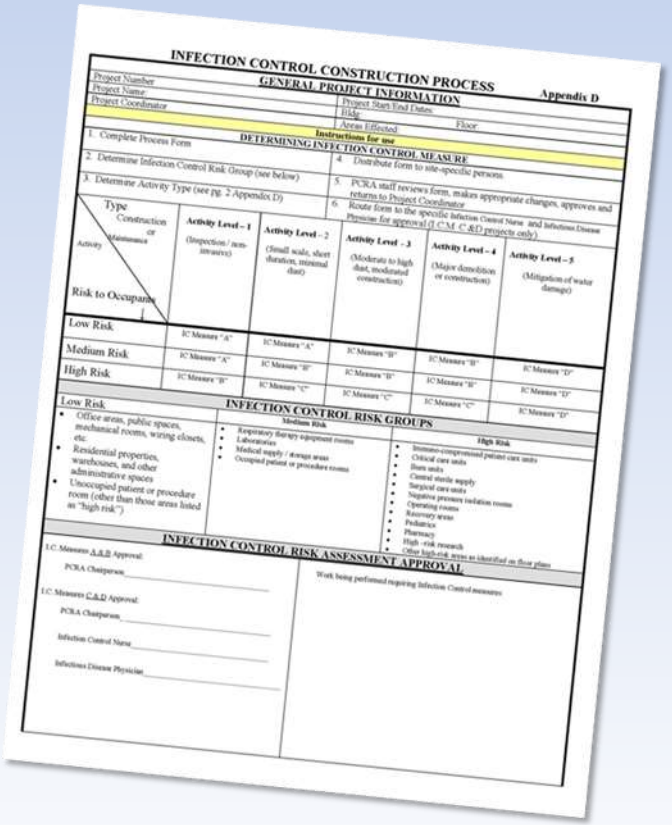
WHAT IS AN ICRA?

A tool that is facility specific

For demonstration purposes a generic tool published by ASHE will be reviewed

Four step process that requires input from contractors, facilities staff, and clinical staff.



INFECTION CONTROL CONSTRUCTION PROCESS — Appendix D

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Type of Construction or Maintenance / Activity / Risk to Occupants	Activity Level – 1 (Inspection / non-invasive)	Activity Level – 2 (Small scale, short duration, minimal dust)	Activity Level – 3 (Moderate to high dust, moderated construction)	Activity Level – 4 (Major demolition or construction)	Activity Level – 5 (Mitigation of water damage)
Low Risk	IC Measure "A"	IC Measure "A"	IC Measure "B"	IC Measure "B"	IC Measure "D"
Medium Risk	IC Measure "A"	IC Measure "B"	IC Measure "B"	IC Measure "B"	IC Measure "D"
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- Pharmacy
- High - risk research
- Other high-risk areas as identified on floor plans

INFECTION CONTROL RISK ASSESSMENT APPROVAL

IC Measures A.A.D Approval:
PCRA Chairperson
IC Measures C.&D Approval:
PCRA Chairperson
Infection Control Nurse
Infectious Disease Physician

Work being performed requiring Infection Control measures

Recommendation for Facilities

- Plans should show barrier placements- discussions should start in planning phase
- Contractor and Owner should work together on implementing the plan
- Owner should review the risk with clinical and nursing staff

Identify Level of Construction Project Activity

Step 1: What are you doing?

- Type A – Inspection or noninvasive activities
- Type B – Small scale, short duration
- Type C – Work that generates moderate dust, longer than 8 hours, or impacts areas outside work area
- Type D – Major demolition for projects

ICRA Matrix –What are you doing?

Step 1: What are you doing?

Activity Level A: Inspection and non-invasive activities.

- Visual inspection
- Removal of less than 10% of ceiling tile
- Painting but not sanding, wall covering
- Minor electrical or plumbing work
- Re-lamping
- Fire alarm device testing
- Inspection of conveyance system

ICRA Matrix –What are you doing?

Activity Level B: Small scale, short duration activities that create minimal dust or water

- Low voltage cable installation
- Access to chase spaces
- Removal of 10% to 50% of ceiling tile
- Cutting walls or ceiling where dust can be controlled.
- Anchor holes in walls, ceilings, and floors
- Minor ductwork or electrical work above ceilings.
- Typical mechanical, electrical, plumbing, conveyance repair work that produces only minimal dust or water.
- Minor adjustment or repair of air handling systems.

ICRA Matrix –What are you doing?

Activity Level B: Small scale, short duration activities that create minimal dust or water

- Clean up of small, contained water leak that has not penetrated wall, ceilings or floors.
- Changing HVAC filters.

ICRA Matrix –What are you doing?

Activity Level C:

- Sanding of walls for painting or wall covering
- Removal of floor coverings, ceilings or casework
- New wall construction
- Significant ductwork or electrical work above ceilings.
- Major cabling activities
- Any activity which cannot be completed within a single work shift
- The removal of piping containing stagnant water.

ICRA Matrix –What are you doing?

Activity Level D:

- Construction activities that require consecutive work shifts.
- Requires heavy demolition or removal of a complete mechanical or electrical system
- New construction
- Dust generated outside the facility

Identify Facility Risk Level

Step 2: Where are you doing it?

1 – Office – Administration, etc.

2 – Cardiology – Radiology – PT – MRI

3 – CCU – ER/ED – Surgery – Lab – LDR – LDRP

4 – Immunocompromised – Burn Units – Transplant – Cardiac Cath – Isolation – Central Sterile

Match Activity with Risk Area

Step 3: Define construction project protection – "Class I, II, III or IV"

- Use Class to define measures to be implemented

CLASS I: DURING PROJECT

Passive Dust Control:

Perform tasks using methods that minimize the amount of dust that becomes airborne or is drawn into the air handling systems. No special containment measures are required.

Misting surfaces to control dust may be needed. If these measures become ineffective, move to IC Measure “II”.

CLASS I: UPON COMPLETION

Typical housekeeping procedures

CLASS II: DURING PROJECT

- Provide active means to prevent airborne dust from dispersing.
- Water mist work surfaces to control dust when cutting.
- Seal doors to area with duct tape.
- Use a dust control mat “Tacky Mat”.
- Isolate HVAC in work areas from occupied areas.

- SBAR for staff, Exit should not create a Dead end corridor, safety information

CLASS II: UPON COMPLETION

- Wipe work surfaces with disinfectant.
- Contain waste in tightly covered containers.
- Wet mop and/or HEPA filter vac before leaving area.
- Reinstall HVAC to normal after clean up complete.

CLASS III: DURING PROJECT

- Isolate HVAC in work areas from occupied areas.
- Install critical barriers prior to construction work starting.
- Maintain construction area under negative pressure compared to adjacent occupied areas.
- Implement HEPA filtration units for any recirculated air.
- Cover all construction waste containers tightly prior to transportation in occupied areas. Clean outside of containers prior to transport in occupied areas.

CLASS III: UPON COMPLETION

- Vacuum work areas with HEPA filtered units.
- Wet mop and wipe all surfaces with disinfectant.
- Reinstall HVAC to normal after clean up complete.
- Do not remove barriers until project inspected by owners representatives.
- Remove barriers to minimize dust generation.

CLASS IV: DURING PROJECT

- All class III requirements plus:
- Seal penetrations appropriately.
- Critical barriers need to be fire rated.
- Construct an anteroom with HEPA filter or create separate entrance for construction workers.

CLASS IV: UPON COMPLETION

- Vacuum work areas with HEPA filtered units.
- Wet mop and wipe all surfaces with disinfectant.
- Reinstall HVAC to normal after clean up complete.
- Do not remove barriers until project inspected by owners representatives.
- Remove barriers to minimize dust generation.

IMPLEMENTATION

Step 4: Implementation

- Requires Infection Control Review and approval prior to start of work
- Requires implementation of measures as determined by the ICRA.
- Required monitoring and documentation

HEPA UNIT

HVAC PROTECTION

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ENVIRONMENTAL CONTAINMENT UNIT

- Supply grill outside of containment
- Sign on unit
- Good seal at top of unit to ceiling
- Corridor not obstructed
- For repairs, minor work or inspections

PROGRAM AGENDA

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Section 2 – ICRA (Infection Control Risk Assessment)
Section 3 – Life Safety Principles
Section 4 – ILSM (Interim Life Safety Measures)

Section 3:
Life Safety Principles

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LIFE SAFETY PRINCIPLES

Why is healthcare different?

- Defend in Place
- Why?

LIFE SAFETY PRINCIPLES

- Save all patients and staff
- Control spread of fire
- Maybe extinguish fire at origin
- RACE:
- **R** - Rescue from room of origin
- **A** - Activate alarm system
- **C** - Contain the fire (close the door-positive latch)
- **E** - Evacuate or Extinguish (if possible)

LIFE SAFETY PRINCIPLES

Walls

Fire Alarm System

Sprinklers

LIFE SAFETY PRINCIPLES

- Walls – provide time
- Smoke compartment walls and doors provide of safety - divide building into zones
- Zones provide alternative evacua options
- Horizontal preferred
- Vertical if necessary
- Building evacuation only if necessary

FIRE BARRIER SEPARATION

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LIFE SAFETY PRINCIPLES

Fire Alarm System

- Occupant Notification
- Smoke Detection
- Pull Stations
- Sprinkler Flow

LIFE SAFETY PRINCIPLES

Sprinklers - Philosophical Change:

- Standard Heads
- Fire Barrier Separation
- Evacuation Critical
- QR – Heads Sprinkler Protection
- Sprinklers Heads As Life Saving Devices
- Reduction in Barriers and Dampers Use

PROGRAM AGENDA

Section 1 – Increased Risks in Health Care Facilities
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Section 4:
Interim Life Safety Management
ILSM

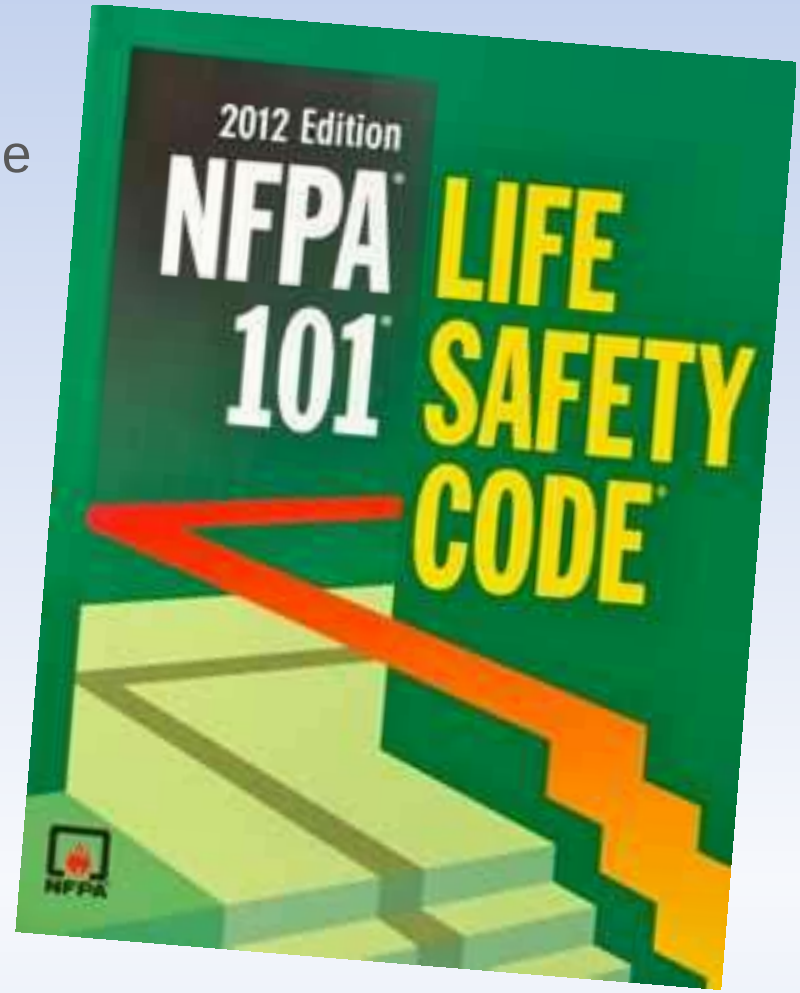
PURPOSE OF ILSM

- During renovations projects in healthcare occupancies, the basic level of protection for the occupants must be maintained as the patients or residents do not have the ability to self evacuate in the event of a fire.
- Code Deficiencies - ILSM assures that basic principles of the Life Safety Code though not technically met by the structure are compensated by staff knowledge, training, and alternative systems during a project

WHEN TO IMPLEMENT ILSM

Whenever a defined component of the Life Safety Code is not met as the result of:

- Construction/renovation activities
- Maintenance activities – Certain PM's
- Survey initiated deficiencies
- Unplanned incidents



ILSM RISK ASSESSMENT MATRIX

Facility: **ILSM Risk Assessment Matrix** **Date:**

Project Name: **Project No:**

	Risk Assessment Matrix **Existing significant Life Safety Code Deficiencies or Conditions as a result of Construction or Maintenance**	Facility notifies the fire department when a fire alarm or sprinkler system is out of service for more than four hours	Facility initiates a fire watch when a fire alarm or sprinkler system is out of service for more than four hours	Facility post signage identifying the location of alternate exits	Facility has a written interim life safety measure (ILSM) plan	Exits in affected areas are inspected on a daily basis	Temporary but fire equivalent fire alarm and detection systems are used when a fire system is impaired	Additional firefighting equipment is provided when needed	Temporary construction partitions are smoke tight and made of material that will not contribute to development or spread of fire	Surveillance of buildings, grounds, and equipment are increased with special attention to construction areas and storage (includes OO Access)	Facility enforces storage, housekeeping, and debris removal practices that reduce the flammable and combustible fire load	Facility provides additional training on the use of firefighting equipment to those who work in the Facility as needed	Facility conducts one additional fire drill per shift per quarter in the affected areas	Temporary systems are inspected and tested monthly	Facility conducts education to promote awareness of building deficiencies, hazards, and temporary measures for fire safety	Facility trains those who work in a Facility to compensate for impaired fire safety features
	Code Deficiencies															
1	Lacking a code compliant smoke barrier			X	X		X	X	X	X		X	X	X	X	X
2	Fire exit stairs discharge improperly			X	X	X									X	
3	Excessive travel distance to an approved exit			X	X	X				X	X					
4	Lack of two remote exits			X	X					X	X			X		
5	Nonconforming building construction type				X		X	X	X	X	X	X	X	X	X	X
6	Improperly properly protected vertical openings				X		X		X	X	X		X			
7	Large penetrations and fire barriers				X					X	X		X			
8	Corridor walls do not extend to the structure			X	X		X		X	X	X		X			
9	Hazardous areas not properly protected	X	X		X			X		X	X	X				X
	Construction Related Issues															
10	Blocking off an approved exit			X	X	X	X			X	X	X	X		X	
11	Renovation on an occupied floor			X	X	X	X	X	X	X	X	X	X		X	X
12	Replacing the fire alarm system (out of service)	X	X		X		X			X	X	X	X	X	X	
13	Installing sprinkler system (out of service)	X	X		X		X	X		X	X	X	X	X	X	X
14	Significantly modifying smoke or fire barrier walls			X	X	X	X	X	X	X	X	X	X		X	X
15	Hot work				X		X	X	X	X	X	X			X	X
	Maintenance and Testing															
16	Taking a fire alarm system out of service	X	X		X		X	X		X		X		X	X	X
17	Taking a sprinkler system out of service	X	X		X		X	X		X		X		X		X
18	Disconnecting or disabling alarm devices	X	X		X		X							X	X	
19	Re-Lamping stairwells			X	X	X										
20																

Per TJC LS.01.02.01

Comments: ______________________________

Construction : Activity Risk Precaution Level

Level of Construction Activity	Type A	Type B	Type C	Type D
Patient Risk Occupancy Group	Low	Medium	High	Highest
Inf. Control Precaution Level	Class I	Class II	Class III	Class IV

Reviewed By: ______________________________

ILSM PLAN

- Organizations which are Joint Commission accredited – must have a policy on ILSM

Fire watch

-when shutting down fire alarm system for more than 4hrs

-when shutting down sprinkler system for more than 10hrs (unless local AHJ requires less time)

-the organization is required to have a policy for a fire watch

ILSM FIRE ALARM

- Facility has a written ILSM plan
- Areas are inspected on a daily basis

ILSM EXITING

- Facility post signage identifying the location of alternate exits
- Exits in affected areas are inspected on a daily basis

ILSM OTHER MEASURES

- Temporary but the equivalent fire alarm and detection systems are used when a fire system is impaired
- Additional firefighting equipment is provided when needed
- Temporary construction partitions are smoked tight and made of material that will not contribute to development or spread of fire

ILSM OTHER MEASURES

- Surveillance are increased of construction areas and storage
- Facility practices that reduce the flammable and combustible fire load

ILSM OTHER MEASURES

- Facility provides additional training on the use of firefighting equipment
- Facility conducts one additional fire drill per shift per quarter
- Temporary systems are inspected and tested monthly

ILSM OTHER MEASURES

- Facility conducts education to promote awareness of building deficiencies, hazards, and temporary measures
- Facility trains to compensate for impaired fire safety features

CODE DEFICIENCIES

- Lacking a code compliant smoke barrier
- Fire exit stairs discharge improperly
- Excessive travel distance to an approved exit
- Lack of two remote exits
- Nonconforming building construction type
- Improperly properly protected vertical openings
- Large penetrations and fire barriers
- Corridor walls do not extend to the structure
- Hazardous areas not properly protected

CONSTRUCTION RELATED ISSUES

- Blocking off an approved exit
- Renovation on an occupied floor
- Replacing the fire alarm system (out of service)
- Installing sprinkler system (out of service)
- Significantly modifying smoke or fire barrier walls
- Hot work

MAINTENANCE & TESTING

- Taking a fire alarm system out of service
- Taking a sprinkler system out of service
- Disconnecting or disabling alarm devices
- Re-Lamping stairwells

LIFE SAFETY PRINCIPLES

ILSM APPLICATION EXAMPLE

CODE DEFICIENCES

Facility:

ILSM Risk Assessment Matrix

Date:

Project Name:

Project No:

	Risk Assessment Matrix Existing significant Life Safety Code Deficiencies or Conditions as a result of Construction or Maintenance															
	Code Deficiencies															
1	Lacking a code compliant smoke barrier			X	X		X	X	X	X		X	X	X	X	X
2	Fire exit stairs discharge improperly			X	X	X									X	
3	Excessive travel distance to an approved exit			X	X	X				X	X					
4	Lack of two remote exits			X	X					X	X			X		
5	Nonconforming building construction type				X		X	X	X	X	X	X	X	X	X	X
6	Improperly properly protected vertical openings				X		X		X	X	X		X			
7	Large penetrations and fire barriers				X					X	X		X			
8	Corridor walls do not extend to the structure			X	X		X		X	X	X		X			
9	Hazardous areas not properly protected	X	X		X			X		X	X	X				X
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15	Hot work				X		X	X	X	X	X	X			X	X
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19	Re-Lamping stairwells			X	X	X										
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Comments: ______________________

Construction / Activity Risk Precaution Level

Level of Construction Activity	Type A	Type B	Type C	Type D
Patient Risk Occupancy Group	Low	Medium	High	Highest
Inf. Control Precaution Level	Class I	Class II	Class III	Class IV

Reviewed By: ______________________

CODE DEFICIENCIES

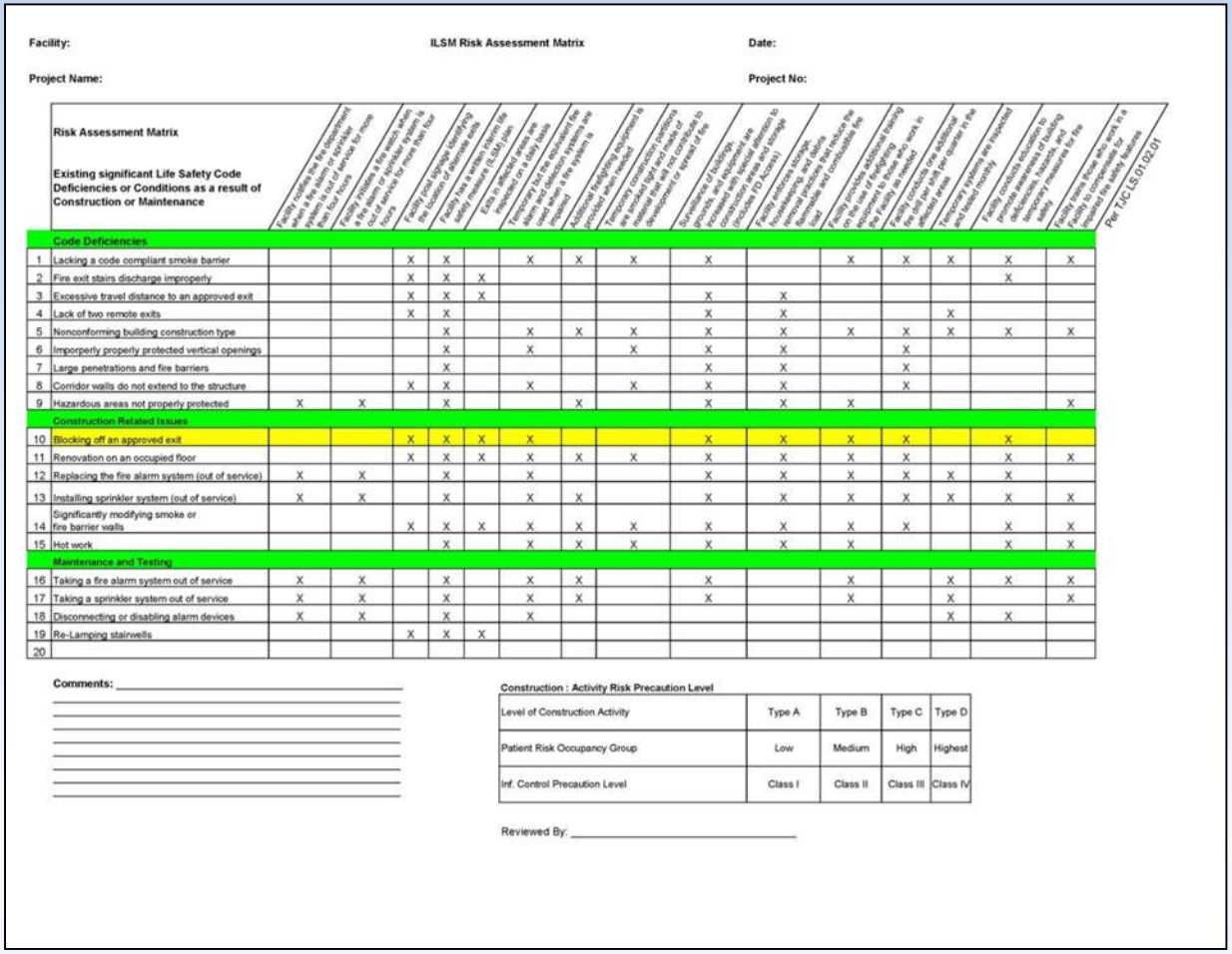
Large penetrations and fire barriers

- Facility has a written interim life safety measure (ILSM) plan
- Surveillance of buildings, grounds, and equipment are increased with special attention to construction areas and storage (Includes FD Access)

CODE DEFICIENCIES

- Facility enforces storage, housekeeping, and debris removal practices that reduce the flammable and combustible fire load
- Facility conducts one additional fire drill per shift per quarter in the affected areas

CONSTRUCTION RELATED ISSUES



Facility: **ILSM Risk Assessment Matrix** **Date:**

Project Name: **Project No:**

Risk Assessment Matrix Existing significant Life Safety Code Deficiencies or Conditions as a result of Construction or Maintenance	Facility notifies the fire department when a fire alarm or sprinkler system is out of service for more than four hours	Facility initiates a fire watch when a fire alarm or sprinkler system is out of service for more than four hours	Facility post signage identifying the location of alternate exits	Facility has a written interim life safety measure (ILSM) plan	Exits are detected when are impeded on a daily basis	Temporary fire detection, fire alarm and detection system are used when a fire system is impaired	Additional firefighting equipment is provided when needed	Temporary construction partitions are installed that are made of material that will not contribute to development or spread of fire	Surveillance of buildings, grounds, and equipment are increased with special attention to construction areas and storage	Facility enforces storage, housekeeping, and waste removal practices that reduce fire load	Facility provides additional training on the use of firefighting equipment to those who work in the Facility as needed	Facility conducts one additional fire drill per shift per quarter in the affected areas	Temporary systems are inspected and tested monthly	Facility conducts education to promote awareness of building deficiencies, hazards of building safety, temporary measures and fire safety	Facility trains those who work in a Facility to competency for impaired fire safety features	Per TJC LS.01.02.01
Code Deficiencies																
1 Lacking a code compliant smoke barrier			X	X		X	X	X	X		X	X	X	X	X	
2 Fire exit stairs discharge improperly			X	X	X									X		
3 Excessive travel distance to an approved exit			X	X	X				X	X						
4 Lack of two remote exits			X	X					X	X			X			
5 Nonconforming building construction type				X		X	X	X	X	X	X	X	X	X	X	
6 Imporperly properly protected vertical openings				X		X		X	X	X		X				
7 Large penetrations and fire barriers				X					X	X		X				
8 Corridor walls do not extend to the structure			X	X		X		X	X	X		X				
9 Hazardous areas not properly protected	X	X		X			X		X	X	X					X
Construction Related Issues																
10 Blocking off an approved exit			X	X	X	X			X	X	X	X		X		
11 Renovation on an occupied floor			X	X	X	X	X	X	X	X	X	X		X	X	
12 Replacing the fire alarm system (out of service)	X	X		X		X			X	X	X	X	X	X		
13 Installing sprinkler system (out of service)	X	X		X		X	X		X	X	X	X	X	X	X	
14 Significantly modifying smoke or fire barrier walls			X	X	X	X	X	X	X	X	X	X		X	X	
15 Hot work				X		X	X	X	X	X	X			X	X	
Maintenance and Testing																
16 Taking a fire alarm system out of service	X	X		X		X	X		X		X		X	X	X	
17 Taking a sprinkler system out of service	X	X		X		X	X		X		X		X		X	
18 Disconnecting or disabling alarm devices	X	X		X		X							X	X		
19 Re-Lamping stairwells			X	X	X											
20																

Comments: _____

Construction : Activity Risk Precaution Level

Level of Construction Activity	Type A	Type B	Type C	Type D
Patient Risk Occupancy Group	Low	Medium	High	Highest
Inf. Control Precaution Level	Class I	Class II	Class III	Class IV

Reviewed By: _____

Wisconsin Healthcare Engineering Association

CONSTRUCTION RELATED ISSUES

Blocking off an approved exit

- Facility has a written interim life safety measure (ILSM) plan
- Facility has a written interim life safety measure (ILSM) plan
- Exits in affected areas are inspected on a daily basis
- Temporary but the equivalent fire alarm and detection systems are used when a fire system is impaired

CONSTRUCTION RELATED ISSUES

- Surveillance of buildings, grounds, and equipment are increased with special attention to construction areas and storage (Includes FD Access)
- Facility enforces storage, housekeeping, and debris removal practices that reduce the flammable and combustible fire load
- Facility provides additional training on the use of firefighting equipment to those who work in the Facility as needed

CONSTRUCTION RELATED ISSUES

- Facility conducts one additional fire drill per shift per quarter in the affected areas
- Facility conducts education to promote awareness of building deficiencies, hazards, and temporary measures for fire safety

MAINTENANCE & TESTING

Facility:

ILSM Risk Assessment Matrix

Date:

Project Name:

Project No:

Risk Assessment Matrix — **Existing significant Life Safety Code Deficiencies or Conditions as a result of Construction or Maintenance**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Code Deficiencies															
1 Lacking a code compliant smoke barrier			X	X		X	X	X	X		X	X	X	X	X
2 Fire exit stairs discharge improperly			X	X	X									X	
3 Excessive travel distance to an approved exit			X	X	X				X	X					
4 Lack of two remote exits			X	X					X	X			X		
5 Nonconforming building construction type				X		X	X	X	X	X	X	X	X	X	X
6 Improperly properly protected vertical openings				X		X		X	X	X		X			
7 Large penetrations and fire barriers				X					X	X		X			
8 Corridor walls do not extend to the structure			X	X		X		X	X	X		X			
9 Hazardous areas not properly protected	X	X		X			X		X	X	X				X
Construction Related Issues															
10 Blocking off an approved exit			X	X	X	X			X	X	X	X		X	
11 Renovation on an occupied floor			X	X	X	X	X	X	X	X	X	X		X	X
12 Replacing the fire alarm system (out of service)	X	X		X		X			X	X	X	X	X	X	
13 Installing sprinkler system (out of service)	X	X		X		X	X		X	X	X	X	X	X	X
14 Significantly modifying smoke or fire barrier walls			X	X	X	X	X	X	X	X	X	X		X	X
15 Hot work				X		X	X	X	X	X	X			X	X
Maintenance and Testing															
16 Taking a fire alarm system out of service	X	X		X		X	X		X		X		X	X	X
17 Taking a sprinkler system out of service	X	X		X		X	X		X		X		X		X
18 Disconnecting or disabling alarm devices	X	X		X		X							X	X	
19 Re-Lamping stairwells			X	X	X										
20															

Per TJC LS.01.02.01

Comments:

Construction / Activity Risk Precaution Level

Level of Construction Activity	Type A	Type B	Type C	Type D
Patient Risk Occupancy Group	Low	Medium	High	Highest
Inf. Control Precaution Level	Class I	Class II	Class III	Class IV

Reviewed By:

MAINTENANCE & TESTING

Taking a fire alarm system out of service

- Facility notifies the FD when a fire alarm or sprinkler system is down for more than 4 hours
- Facility initiates a fire watch
- Facility has a written interim life safety measure (ILSM) plan

MAINTENANCE & TESTING

- Temporary but the equivalent fire alarm and detection systems are used when a fire system is impaired
- Additional firefighting equipment is provided when needed
- Surveillance of buildings, grounds, and equipment are increased with special attention to construction areas and storage (Includes FD Access)
- Facility provides additional training on the use of firefighting equipment to those who work in the Facility as needed

MAINTENANCE & TESTING

- Temporary systems are inspected and tested monthly
- Facility conducts education to promote awareness of building deficiencies, hazards, and temporary measures for fire safety
- Facility trains those who work in a Facility to compensate for impaired fire safety features

ILSM CONSIDERATIONS

Will temporary construction barriers be installed?

- Type and rating to be defined

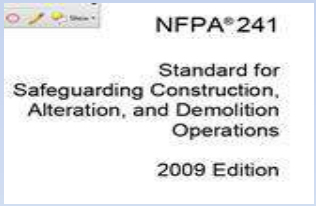
What hazards will be created outside project area?

ILSM CONSIDERATIONS

Temporary Construction Barriers

- Non-combustible Material
- Smoke Tight
- Match Rating of Wall Removed or Impaired

Temporary Barriers



This is referenced in NFPA 101 – Life Safety Code. Here is the Chapter and verse…

8.6.2 Temporary Separation Walls.

8.6.2.1 Protection shall be provided to separate an occupied portion of the structure from a portion of the structure undergoing alteration, construction, or demolition operations when such operations are considered as having a higher level of hazard than the occupied portion of the building.

8.6.2.2 Walls shall have at least a 1-hour fire resistance rating.

8.6.2.3 Opening protectives shall have at least a 45-minute fire protection rating.

8.6.2.4* Nonrated walls and opening protectives shall be permitted when an approved automatic sprinkler system is installed.

Note the sprinkler exception. If the area is sprinklered, and the ceiling is remaining, you are fine. If the ceiling is removed, the heads must be turned up and replaced with upright style heads.

The "*" in 8.6.2.4 means it's referenced in the appendix. Here that Chapter and Verse from the Appendix…

A.8.6.2.4 Construction tarps would not be considered appropriate barriers or opening protectives.

ILSM CONSIDERATIONS

Temporary construction barriers

- Clinical considerations, duration, and purpose define construction type for barriers
- Healthcare residents require higher level of protection than general public due to compromised condition.
- Life Safety considerations
- Fire rated partitions may be required between patients

ILSM CONSIDERATIONS

Will project cause any disruption in fire protection systems?

- Alarm systems
- Detection systems
- Fire watch required if >4 hour shutdown

Will exit discharge be affected by project?

ILSM CONSIDERATIONS

Training (Contractors and Hospital Employees)

- Impact of disruption
- Additional fire drills (2 times/quarter/shift)
- Training on new equipment
- Fire watch - staff and/or contractor training
- Additional fire suppression equipment
- Temporary systems for detection, suppression
- Building deficiencies
- Construction hazards
- Temporary measures implemented

ILSM CONSIDERATIONS

Critical services disrupted or impaired

- Staff training
- Advance awareness of work
- Procedural changes required for work
- Schedule changes for services
- Clinical input regarding scheduling of disruption or impairment

ILSM CONSIDERATIONS

When any structural or compartmentalization features for fire safety compromised

- Staff training
- Awareness of change
- Procedural changes needed
- Fire equipment use training

ILSM CONSIDERATIONS

- Daily documented inspections
- Exits (both internal and external to construction areas)
- Combustible loads (minimize)
- Fire extinguishers
- No smoking
- Barriers (appropriate rating and integrity)
- Exterior staging areas and construction offices
- Storage and excavation areas

OTHER CONSIDERATIONS

- Cutting and welding per facility policy
- Safety education programs including ILSM
- Fresh air intakes protected
- Construction entrances cleaned sufficiently to maintain clean entry/exit to area
- Construction worker identification process

WHY IS THIS IMPORTANT?

Problems in ILSM can lead to:

- Patient Safety Risks and a
- CONTINGENT ACCREDITATION
- One step above a denial!

Questions?