MINNESOTA HEALTH CARE ENGINEERS

FIRE/LIFE SAFETY IN ASSISTED LIVING FACILITIES

September 13, 2012
MINNESOTA HEALTH CARE ENGINEERS
FIRE/LIFE SAFETY IN ASSISTED LIVING FACILITIES

WELCOME

Exits

Restrooms

Break

?? Questions ??

Please set cell phones/pagers to “stun”

Fire Safety Resources, LLC
MINNESOTA HEALTH CARE ENGINEERS
FIRE/LIFE SAFETY IN ASSISTED LIVING FACILITIES

Fire Safety Resources, LLC
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- HELPING YOU PROTECT THE PEOPLE IN YOUR CARE -
The purpose of this seminar is to provide a brief overview of some of the major requirements of the 2007 MN State Fire Code that apply to facilities registered as Housing with Services/Assisted Living in order to help ensure that the residents of such facilities are housed in a fire-safe environment.
Abbreviations Used in Seminar

HWS/AL  Housing with Services/Assisted Living
MSFC  Minnesota State Fire Code
MSBC  Minnesota State Building Code
NFPA  National Fire Protection Association
SFMD  State Fire Marshal Division

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SPECIAL CONSIDERATIONS

- Combustible construction
- Lack of smoke compartmentation
- Limited staffing to assist with evacuation
- Vulnerable population

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In a fire emergency, rescue should be the Number 1 priority.

This can be very labor-intensive and time-consuming.
HWS/AL – The occupants

HWS/AL facilities serve a very vulnerable population

- Residents with vision, hearing and/or mobility impairments
- Residents with respiratory problems
- Medications may affect how residents react in a fire situation
- Residents with dementia

_Fire Safety Resources, LLC_
State and national fire safety codes and standards are based on the assumption that a fire WILL occur in your facility at some point in time.

An unsafe act by one resident can endanger the lives of all the other building occupants.
Types of fires that can occur in residential occupancies include:

- Cooking equipment
- Heating equipment
- Laundry
- Electrical
- Smoking materials
- Intentionally set

*Fire Safety Resources, LLC*
The current Minnesota State Fire Code (MSFC) was adopted on July 10, 2007

The 2007 Minnesota State Building Code (MSBC) was adopted on the same date

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MSFC – Code application

- MSFC applies statewide
- It is a minimum code
  
  With some limitations, local jurisdictions allowed to adopt more restrictive requirements
  
- It applies to both new and existing buildings
Buildings constructed or for which plans were reviewed or a permit issued prior to July 10, 2007 are considered EXISTING

Buildings constructed or for which plans were reviewed or a permit issued on or after July 10, 2007 are considered NEW (this would include additions to and/or major renovations of existing buildings)
The Minnesota SFMD has no mandate to inspect HWS/AL program facilities.

Local Fire Marshals/Inspectors may inspect these types of facilities depending on their personnel resources.

Whether or not any particular building is inspected by a fire marshal, the requirements of the MSFC still apply.
When an assisted living program building is attached to a licensed/certified health care facility, the two occupancies must be separated by a fire barrier having not less than a 2-hour fire resistance rating.

This separation will be reviewed at the time of the health care facility’s annual fire inspection.

NFPA 101(00), Sec. 18/19.1.2

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Many of the major requirements of the MSFC are based on occupancy classification.

Factors affecting occupancy classification include:
- Number of residents
- Resident self-preservation capabilities

Facilities registered as HWS/AL can fall under any of 5 occupancy classifications.

MSFC(07), Sec. 202

Fire Safety Resources, LLC
Group R-2 Occupancies:

Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature (e.g. apartment houses, boarding houses and dormitories)
MSFC – Occupancy Classification

Group R-3 Occupancies:

Facilities housing five (5) or less persons on a 24-hour basis

Fire Safety Resources, LLC
Group R-4 Occupancies:

Facilities housing at least six (6) but not more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services.

Occupants must be capable of responding to an emergency situation without physical assistance from staff.

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Group I-1 Occupancies:

Facilities housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services

Occupants must be capable of responding to an emergency situation without physical assistance from staff
MSFC – Occupancy Classification

Group I-2 Occupancies:

Buildings used for medical, psychiatric, nursing or custodial care on a 24-hour basis for more than five (5) persons who are not capable of self-preservation

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For purposes of this seminar, it will be assumed that facilities registered as HWS/AL fall into one of the three following occupancy groups:

- Group R-3
- Group R-4
- Group I-1
Health care occupancies:
- Residents need assistance with evacuation
- Defend in place

Residential style occupancies:
- Occupants expected to be capable of exiting on their own
- Full evacuation
EGRESS DOOR SECURITY

What does the code say?

“Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.”

Sec. 1008.1.8.3, however, authorizes the use of certain types of locks and latches to prevent the operation of exit doors, including the use of:

- Delayed egress locks
- Special egress-control devices (e.g. mag locks)

MSFC(07), Sec. 1008.1.8

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EGRESS DOOR SECURITY

Things to consider before locking any doors in the means of egress...

Which doors need to be secured in some fashion?

What level of security is absolutely necessary?

Which of those doors are part of the required means of egress?

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Delayed egress locks are allowed but must comply with MSFC(07), Sec. 1008.1.8.6:

- Locks must be listed
- Building must be protected throughout by either a supervised automatic:
  - Smoke detection system – or
  - Fire sprinkler system

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DELAYED EGRESS LOCKS

- Specific signage required on door:

   PUSH UNTIL ALARM SOUNDS
   DOOR CAN BE OPENED
   IN 15 SECONDS

- Delay of up to 30 seconds allowed with prior approval from AHJ

- Not more than one delayed egress locking device allowed in any egress path
Special egress control devices

These door-locking arrangements are allowed only “where the clinical needs of the patients require specialized security measures for their safety”

Not allowed in Group R-2 occupancies

MSFC(07), Sec. 1008.1.11

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EGRESS DOOR SECURITY

One way to meet “clinical needs” standard of MSFC(07), Sec. 1008.1.11 is with use of transponder-activated locking systems

Activation of building fire alarm system or fire sprinkler system must override and release locks

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Egress Door Security

Other locking arrangements that prevent egress (e.g. electric strikes or latches, magnetic locks, etc.) must comply with MSFC(07), Sec. 1008.1.11

Newly installed locking arrangements must also comply with MSBC(07), Sec. 1008.1.3.6

- Smoke compartmentation required
- Restrictions based on construction type

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MSBC/MSFC LOCKING REQUIREMENTS

- Building, or affected fire area, must be protected by an automatic fire sprinkler system and an automatic corridor smoke detection system
- In at least one egress path, not more than one such locking arrangement is located
- No public assembly space allowed within secured area

MSFC(07), Sec. 1008.1.11

Fire Safety Resources, LLC
MSBC/MSFC LOCKING REQUIREMENTS

- 24-hour supervision must be provided within the secured area
- Keys or devices that function like keys must be carried by staff at all times
  - This requirement can be met with the use of keypad or card swipe release
- Locks must be capable of being released from an approved location within the locked area

MSFC(07), Sec. 1008.1.11

Fire Safety Resources, LLC
Locks must also release upon:

- Activation of fire sprinkler system
- Activation of corridor smoke detection system
- Activation of automatic fire alarm system
- Loss of electrical power

Relocking must be by manual means from within the secured area

MSFC(07), Sec. 1008.1.11

Fire Safety Resources, LLC
EGRESS DOOR SECURITY

An additional note…

HWS/AL facilities that secure, segregate or provide a special program or special unit for residents with diagnosis of probable Alzheimer’s disease or a related disorder are considered a “special care unit”

Special care units must provide written disclosure that includes description of security features

\[ \text{MN Statute 325F.72} \]

\[ \text{Fire Safety Resources, LLC} \]
ESCAPE WINDOWS

Emergency escape windows are required in all Group R and I-1 occupancy sleeping rooms below the 4th story, including basements.

Minimum net clear opening of 5.7 ft² required, but there are exceptions based on date of installation and location above grade.

MSFC(07), Sections 1001.1 & 1026

Fire Safety Resources, LLC
ESCAPE WINDOWS

See State Fire Marshal website for more info:

www.fire.state.mn.us

MSFC – Inspection Policies – INS-04

Emergency escape windows are not required in buildings protected throughout by an approved, automatic fire sprinkler system

MSFC(07), Sec. 1026.1, Exception 3

Fire Safety Resources, LLC
Automatic Fire Sprinklers

Required in all NEW

- Group R-3 located in a building housing another dwelling unit (e.g. duplexes) AND either >9,250 ft² in area or located more than 3 stories above grade
  - Group R-4 >9,250 ft² in area or located more than 3 stories above grade
  - Group I-1

MSFC(07), Sections 903.2.5 & 903.2.7

Fire Safety Resources, LLC
Automatic Fire Sprinklers

Required in EXISTING Group I-1 basements exceeding 2,500 ft² in size unless approved fire department access is provided

**Recommended** for EXISTING Group R-3, Group R-4 and Group I-1

MSFC(07), Sec. 903.6.2

*Fire Safety Resources, LLC*
Automatic Fire Sprinklers

Required in all NEW and EXISTING Groups R-3, R-4 and I-1 where:

- Delayed egress locks are used on exit doors, UNLESS building is protected by a full-coverage automatic smoke detection system

- Special egress control devices (e.g. mag locks) used on exit doors

MSFC(07), Sections 1008.1.8.6 & 1008.1.11

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Manual and automatic fire alarm system required in all NEW and EXISTING Group I-1 Approved automatic fire detectors required in “hazardous” areas

*Exception*: Sprinklered buildings where fire sprinklers activate fire alarm system

MSFC(07), Sections 907.2.6, 907.3.3, 903.4.2 & 907.14
Fire Alarm System

Fire alarm systems in NEW and EXISTING Group I-1 must include:

- Automatic smoke detectors in waiting areas open to corridors
- Automatic fire department notification

MSFC(07), Sections 907.2.6 & 907.3.3

Fire Safety Resources, LLC
Fire alarm systems in NEW and EXISTING Group R and Group I-1 must include:

Corridor smoke detection where special egress control devices (e.g. mag locks) used on exit doors

MSFC(07), Sec. 1008.1.11
Fire Alarm System – Smoke Alarms

An automatic fire alarm system is required in NEW Group R-3 and R-4 consisting of smoke alarms located:

- Outside each sleeping area
- Inside each room used for sleeping purposes
- On each story

MSFC(07), Sec. 907.2.10
Smoke Alarms

Smoke alarms in NEW Group R-3 and R-4 must be:

- Hard-wired and equipped with battery back-up
- Interconnected in such a manner that the activation of one alarm will activate all the alarms in the unit

MSFC(07), Sec. 907.2.10

Fire Safety Resources, LLC
Smoke Alarms

Smoke alarms required in EXISTING Group R-3 and R-4 as specified in code in effect at time of construction

Otherwise smoke alarms must be provided as specified in MSFC(07), Sec. 907.2.10

MSFC(07), Sec. 907.3.6

Fire Safety Resources, LLC
Smoke Alarms

Sleeping room smoke alarms required in NEW and EXISTING Group I-1

System-connected smoke detectors are RECOMMENDED in sleeping rooms of non-sprinklered facilities

MSFC(07), Sections 907.2.10 & 907.3.6

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Carbon Monoxide (CO) Alarms

CO alarms required within 10 ft of each room used for sleeping purposes

As an alternate, CO alarms may be…

- Installed within 15 to 25 ft of CO-producing equipment, and
- Arranged to activate a signal at a constantly attended staff location or central station service

*MN Statute 299F.51*

*Fire Safety Resources, LLC*
Carbon Monoxide (CO) Alarms

Facilities that contain minimal or no sources of CO may request an exemption from the Commissioner of Public Safety

*MN Statute 299F.51, subd. 5(b)*

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Corridor Walls – NEW

Must be fire-resistance rated in NEW:

- Group R-4 where occupant load served by corridor greater than 10 persons
- Group I-1

Only foyers, lobbies or reception rooms allowed to be open to corridor when corridor required to be fire-resistance rated

MSFC(07), Sec. 1017

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Corridor Walls – EXISTING

Corridor walls must be fire-resistance rated in EXISTING Group R-4 and Group I-1 where occupant load served by corridor greater than 10 persons.

No fire resistance rating required in fully sprinklered existing buildings.

MSFC(07), Sec. 1027.17

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Corridor Width

Minimum corridor width required:

- 36 inches in NEW and EXISTING Group R-3 and Group R-4
- 36 inches in EXISTING Group I-1

MSFC(07), Sections 1017.2 and 1027.17.3

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Corridor Width

Minimum corridor width required:

- 36 inches in NEW Group I-1, where occupant load served by corridor ≤49 persons
- 44 inches in NEW Group I-1, where occupant load served by corridor >50 persons

MSFC(07), Sections 1017.2 and 1027.17.3

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Corridor Doors

In NEW and EXISTING Group I-1 and Group R-4, where corridors required to be fire-resistance rated, corridor doors must:

- Carry minimum 20-minute fire-resistance rating, AND
- Be self-closing or automatic-closing with smoke detection

MSFC(07), Sections 1017, 701.1 & 1027.17.2.1

Fire Safety Resources, LLC
Corridor Doors

- In EXISTING Group I-1 and Group R-4, corridor doors of solid wood or insulated steel construction are allowed.
- No fire resistance rating required in fully sprinklered EXISTING buildings.
- When door closers required, reduced opening force and/or delayed action closers recommended.
Emergency Lighting

Must be provided in NEW and EXISTING facilities whenever two or more means of egress required

Needs to cover corridors, stairways, exits, and exterior landings at exit discharge doors

MSFC(07), Sec. 1006.3 and 1027.5.3

Fire Safety Resources, LLC
Number of Exits

General Rule of Thumb – Minimum of 2 exits required in Group I-1 and Group R-4:

- Basements
  - Where occupant load exceeds 10 persons on 1st Floor
    - All levels above 1st Floor

MSFC(07), Sec. 1019 and 1027.23

Fire Safety Resources, LLC
Open Stairways

No vertical opening protection required for NEW or EXISTING Group R-3

No vertical opening protection required for openings connecting two stories in NEW or EXISTING Group R-4

MSFC(07), Sections 701 and 704.1

Fire Safety Resources, LLC
Enclosed Stairways

Minimum 1-hr enclosure of vertical openings required in NEW and EXISTING Group I-1

MSFC(07), Sections 701 and 704.1

Fire Safety Resources, LLC
Storage, Handling & Use of Oxygen

Oxygen is not flammable and will not explode

BUT it does support combustion

Oxygen makes things burn faster and ignite easier
Storage, Handling & Use of Oxygen

Storage, handling and use of medical gases (e.g. O\textsubscript{2}) required to comply with requirements of NFPA 99

Ensure that each supplier provides users with information about safe storage, handling and use of oxygen

MSFC(07), Sections 3006.1 & 3006.4

Fire Safety Resources, LLC
Storage, Handling & Use of Oxygen

General safe practices:

- Store cylinders in upright position with protective caps in place
- Properly secure cylinders to prevent them from being knocked over
- Store cylinders away from combustibles and heat or ignition sources (e.g. smoking)
- Do not store cylinders in a confined space such as a closet
- Place proper signage on doors to resident units in which \( O_2 \) is stored or used to alert first responders of the potential dangers within
Inspection, Testing & Maintenance

Check fire extinguishers monthly...

...and have them serviced annually

Test and maintain battery-operated smoke alarms per manufacturer’s instructions

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Inspection, Testing & Maintenance

Test battery-operated emergency lights monthly

Kitchen hood extinguishing systems must be serviced at least every 6 months

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Fire alarm and fire sprinkler systems must be inspected and tested at least annually in accordance with NFPA Standards 72 and 25

MSFC(07), Sec. 901.6.1

Fire Safety Resources, LLC
Inspection, Testing & Maintenance

PROTECT YOURSELF...

DOCUMENT all inspection, testing and maintenance performed

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

Fire Safety Resources, LLC
Approved fire safety and evacuation plan required in Group R-4 and Group I-1

Must be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy or physical environment

Must be amended upon admission of any resident with unusual needs

MSFC(07), Sections 404 & 408

Fire Safety Resources, LLC
Staff training – Group R-4/Group I-1

Employees must receive training in their duties, as assigned in the fire safety plan, as part of new employee orientation and at least annually thereafter.

Such instruction must be reviewed by staff at least every 2 months.

MSFC(07), Sections 406 & 408
Residents capable of assisting in their own evacuation must be trained in proper actions to take in event of fire…

…and trained to assist each other to extent their physical and mental abilities permit without additional personal risk.

Training in fire prevention and actions to take in event of fire must be part of any rehabilitation or habilitation training.

MSFC(07), Sections 408.5.3 & 408.10.3

Fire Safety Resources, LLC
Emergency evacuation drills

- 6 emergency evacuation drills required each year in Group R-4 and Group I-1
- Two times per year on each shift
- 12 drills required in first year of operation
- Drills must involve actual evacuation of residents to a selected assembly point

MSFC(07), Sections 408.5 & 408.10

Fire Safety Resources, LLC
Are there any questions???

THANK YOU!!