



CLEAN CONSTRUCTION - Tips for controlling infection risks during construction projects



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While generally thought to be an issue associated only with acute care settings (i.e. hospitals), it is really an issue in any health care facility



Over the last decade, specific requirements applicable to hospitals have become increasingly sophisticated. While not yet “requirement”, these same tools can be used in other health care facilities, such as nursing homes and supervised living facilities



Regardless of the setting, whenever a company's operations causes harm to someone whose presence is foreseeable, there is a risk of legal liability



The best way to avoid this liability is to take proactive measures to prevent the harm. In this case, an ounce of prevention is worth a pound of cure



The first step in this process requires that the infection control risk needs to be identified

Construction projects do not all present the same level of risk



Tools that have been developed to assist facility and construction staff divide “construction” into four basic types and patient/resident risk groups into four basic groups



We are not going to discuss the Infection Control Risk Assessment beyond identifying the types and groups





Type A involves non-invasive inspection or minor repair work taking less than ½ hour

Examples include, but are not limited to; painting (with no sanding), wall covering, electrical trim work, minor plumbing, and other activities that do not generate dust

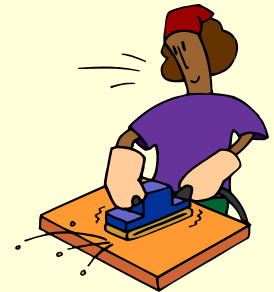


Type B involves small scale, short duration maintenance and repair and component installation activity taking less than 2 hours

Examples include, but are not limited to, installation of communication cabling or cutting a wall or ceiling where the spread of dust can be controlled



Type C involves work that generates considerable amounts of dust, requires demolition, or removal of fixed building components or assemblies



Examples include new wall construction, sanding of walls for painting or wall covering, removal of floor coverings, ceiling tiles, and casework



Type D involves major demolition and major construction projects



Examples include construction of additions to a building, or complete reconstruction of a floor or wing of a building



The LOW RISK group involves only

➤ administrative and support offices



The MEDIUM RISK group includes

- cardiology
- echocardiography
- endoscopy
- nuclear medicine
- physical therapy
- radiology/MRI
- and respiratory therapy



The HIGH RISK group includes

- CCU
- emergency room
- labor and delivery
- laboratories handling specimens
- newborn nursery



The HIGH RISK group (cont.)

- outpatient surgery
- pediatrics
- pharmacy
- PACU
- and surgical units



The **HIGHEST RISK** group includes **ANY**

- immunocompromised patients/residents
- burn unit
- cardiac cath lab
- central sterile supply
- ICU



The HIGHEST RISK group (cont.)

- isolation rooms
- oncology
- OR's, including C-section rooms
- medical unit



Plugging these parameters into the
IC Matrix identifies the required Class of
Precautions



What actions should we think about
conducting?



First and foremost is SEPARATION.

The type of separation is generally dictated by the scope of the project. Separation can be as simple as closing the door to the room where you are painting or as complex as constructing full-height rated walls between the construction zone and living spaces



Fire Safety and Construction Projects

NFPA 241, Safeguarding
Construction, Alteration and
Demolition Projects



NFPA 241

For CMS, the 1996 Edition applies.

For the Minnesota State Fire Code (MSFC),
the 2000 Edition applies

They are basically the same



NFPA 241 Highlights

- Only noncombustible, flame resistant and fire retardant materials shall be used for construction area separations
- Fire extinguishers shall be available in all construction areas
- No smoking
- Waste material shall be removed after each shift, or more often as necessary



NFPA 241 Highlights cont.



- Flammable and combustible liquids shall be properly stored
- Temporary wiring shall be removed once it is no longer needed
- Site security shall be maintained
- Firefighting access shall be maintained

NFPA 241 Highlights cont.

- Construction projects may not obstruct required exits from the facility
- Temporary exits may need to be constructed

NFPA 241 Highlights cont.

➤ Fire separations are required.

Walls must have 1-hour fire resistance rating

Steel studs with sheet-rock on construction side

Doors must have a 45 minute fire rating

Can be non-rated when a fully functioning
fire sprinkler system protects the construction
area



NFPA 51B, 1999

Standard for Fire Prevention During.....Hot Work

- Combustibles should be 35' away from any hot work
- A fire watch shall be maintained for at least ½ hour after completion of hot work to watch for and extinguish fires

Managing FOOT TRAFFIC

Define construction crew path of entry into and exit from the building. Assure that construction crew is using only the designated route(s)

Sign the route(s) to keep patients/residents, visitors and facility staff away from construction route(s) and area



Dedicate one elevator (if needed) to construction workers and key off this elevator from all others

This will require an anteroom on the construction floor to prevent contamination of the shaft



Place and maintain tacky mats at the entrance to the construction anteroom and construction zone



Managing the FLOW AND QUALITY OF AIR
is extremely important

This can be as simple as installing an
outbound fan in the window or as complex
as a HEPA filtration system



Make sure that the HVAC systems in the anteroom and construction zone have been isolated from the rest of the system

This includes both supply and return diffusers. If not isolated, exhausts will require cleaning prior to occupancy following construction



Depending on scope of the project, background and ongoing indoor air quality testing of adjacent spaces may be indicated



Managing WASTE includes

- thinking about a convenient location for the construction dumpster
- finding a short route from the construction zone to the outside
- and the use of covered carts to transport waste



New materials entering the building should also be covered until delivery to the construction zone



Managing the CLEAN-UP following completion of the project

- Assure removal of all debris and construction dust in concealed spaces using a HEPA filtered vacuum

- Clean all exposed surfaces in the construction zone using a HEPA filtered vacuum
- As indicated, conduct final indoor air quality assessment in both adjacent spaces and the construction zone

- Has your facility planned for a utility outage of 96 hours (4 days)?
- If your hospital is accredited by the Joint Commission, this planning is now required

- Emergency Management Standard EM.02.01.01 states; “The hospital has an Emergency Operations Plan.”
- Emergency Management (EM), Elements of Performance for EM.02.01.01, paragraph 3 states; “The Emergency Operations Plan identifies the hospital’s capabilities and establishes response procedures for

- when the hospital cannot be supported by the local community in the hospital's efforts to provide communications, resources and assets, security and safety, staff utilities, or patient care for at least 96 hours.”

- Emergency Management Standard EM.02.02.09 states; “As part of its Emergency Operations Plan, the hospital prepares for how it will manage utilities during an emergency.”

- Emergency Management (EM), Elements of Performance for EM.02.02.09, states; “As part of its Emergency Operation Plan, the hospital identifies alternative means of providing the following (EPs 2-7):



- EP3 states; “Water needed for consumption and essential care activities.”
- EP4 states; “Water needed for equipment and sanitary purposes.”

- How much water is consumed at a particular health care facility is as individualized as each person in this room

- A very comprehensive planning document from New York City indicates that a hospital consumes 300 gallons per day/bed (domestic use) and .17 gallons per day for air conditioning
- The Minnesota Plumbing Code indicates a consumption of from 150 to 250 gallons per day/bed



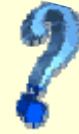
- Each hospital should know their water demand. This is easily obtained either from the municipal meter(s) installed at the facility or by contacting the municipal water utility. This figure can be sub-divided in many different ways (e.g. by bed, by occupant, etc.)

- Facility staff must determine what water consuming occupants and equipment will be eliminated during an emergency
- For example, will bathing of patients be suspended; will admissions be restricted (reducing occupant load), will food service continue and at what level

- One much more precise method is to conduct a comprehensive water consumption study at your facility
- This determines exact usage of each function, including usage of each water closet and lavatory and then makes assumptions regarding how many times each occupant flushes a toilet or runs a lavatory to wash their hands, etc

Copies of actual studies at hospitals are available on the web





QUESTIONS

