 Contractors with healthcare experience are well aware of the infection control risks associated with hospital renovation and construction projects. Construction teams that have completed renovation projects for large urban hospitals and healthcare systems understand the importance of working closely with the healthcare facility’s infection control department and strictly adhering to the detailed infection control plan.

Rural hospitals and smaller private hospitals, however, may not have the same resources as large urban systems. These facilities likely undertake renovations less often and they may not have dedicated full-time infection control professionals with construction experience. As a result, smaller facilities often produce more generic infection control plans and depend on the expertise of the general contractor on infection control measures.

There’s no room for error on infection control so it’s critical to get the details right. A few specific measures can make a huge difference on construction projects in a healthcare environment.

**SEPARATE CONSTRUCTION PERSONNEL**

Completely separate construction personnel from hospital staff and visitors by assigning a dedicated exterior access point and dedicated elevators, etc. If dedicated access is not possible, another option is for construction personnel to share the access points used by hospital maintenance staff. If access points cannot be segregated, coordinate and schedule the work so that the hospital’s operations are not disrupted.

**Start the separation of construction personnel at the parking lot.** Construction dust in the parking lot can easily be transferred from hospital staff to patients, so eliminate that possibility by designating a separate parking area for construction vehicles. Clearly mark the path into the hospital that workers should follow. Inside the facility, use a quick visual way, such as a strip of colored tape on the floor, to identify sterile and patient areas and mark the route for construction personnel. Badge every construction worker to provide greater accountability.

**Set specific times to bring in construction materials and take out trash.** Immediately after the designated times carry out a detailed cleanup of the area with a HEPA vacuum cleaner to ensure that trailing residual dust is not picked up by public foot traffic.
Enclose or cover all construction materials and debris brought in or out through the hospital. Whenever possible completely enclose the materials in a clean container, or at the very least, cover them with a clean sheet of plastic.

PROPERLY PLAN THE NEGATIVE PRESSURE CONTAINMENT AREA
Infection control plans usually require the use of negative pressure to ensure that dust does not escape from the work site.

Rely on a professional mechanical engineer to design the negative pressure system. Proper planning, design and installation is required to ensure that the negative pressure in the containment area does not adversely affect the air pressures and air flow in the surrounding hospital.

Whenever possible, exhaust the construction air outside the building. If this is not possible, the air can be exhausted into the return air stream or into an exhaust duct as long as HEPA filtration is used.

MONITOR NEGATIVE PRESSURE
When it comes to monitoring the negative pressure, the infection control plan may not specify how the air pressure levels are to be monitored. Many monitoring methods are available, but two in particular have been proven very effective:

Use a manometer with an automated alert system. The best manometers are those that are easy to use, and one with an automated alert system ensures the construction team is immediately notified about unacceptable pressure readings. Some manometers sound audible alarms while others will send an alert to a phone number.

Use a simple visual tool. A smoke test or a flutter strip on a HEPA machine provides a simple yet very effective visual way for all construction personnel to monitor the air flow from a distance. These tried-and-true methods can be used either in addition to or in place of manometers.

USE THE RIGHT CONTAINMENT BARRIERS
If the infection control plan does not specify the type of material to be used for the dust containment barrier, your decision should be based on two considerations: first, the amount of dust that will be generated, and second, the length of time the barrier needs to be in place.
If conditions allow, it is best to use prefabricated containment panels that simply need to be erected and sealed off. If that is not possible, ensure that containment barriers are constructed from non-combustible (or at least flame-resistant) materials that do not generate dust while they are being installed. The barrier wall must also have a cleanable surface on the hospital side of the wall.

Insulate temporary walls to provide a sound barrier. Sound barriers are not directly an infection control issue, but a quiet atmosphere contributes to the healing environment. Always use plastic-covered insulation.

Whenever possible build permanent walls as containment barriers. If the plans allow, time and money can be saved by building permanent walls to use as containment barriers. This will eliminate the need to continually check the integrity of the temporary walls. Permanent walls give patients, visitors and hospital personnel confidence in the construction process and contribute to the healing environment.

Call in an expert to install plastic sheeting above the ceiling. Asbestos abatement contractors are some of the best at installing plastic sheeting above ceilings.

**KEEP AIR QUALITY RECORDS**
Even if the infection control plan does not require permanent records, keep in mind that records are important risk management tools and are sometimes needed for documentation after the fact.

**Take a baseline air quality measurement.** Take an air quality reading before the renovations begin to establish the particulate count, and another reading at the end of the project. In sensitive patient areas, take and record air quality readings frequently throughout the project.

**Record each time that a HEPA filter is changed.**

**WORK CLOSELY WITH HOSPITAL STAFF**
**Double-check before disrupting systems.** Emergencies frequently arise in a healthcare facility, so even if a shutdown is approved weeks in advance always get a last-minute go-ahead from the head nurse on duty.

**Work with the hospital in establishing an emergency response team available 24/7.** This will help construction personnel know who to contact in case issues arise.
CHOOSE SUBCONTRACTORS WITH EXPERIENCE

Hire subcontractors carefully and provide training. Using subcontractors with healthcare experience can make all the difference, but also make sure they know the specifics of the infection control plan on every project.

Before each sub begins work, walk them through the facility and make sure you clarify infection control measures—which entrances, exits and elevators they should use, which areas are sterile, etc. While you’re at it, clarify expectations about appropriate clothing and appropriate language so that those issues don’t interfere with the healing environment. Provide specific training again before work starts in an occupied area.

Infection control should always be the top priority when renovating or building a healthcare facility. Getting all of the details right, including the areas listed above, will ensure the highest level of protection for current and future patients of the facility.

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