Yale University

STANDARDS FOR SAFE OUTPATIENT CLINIC DESIGN

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Prepared by
Yale Environmental
Health & Safety

Yale Environmental Health and Safety
Standards for Safe Outpatient Clinic Design

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Introduction

This document is intended to provide minimum standards for design and construction of new outpatient clinical sites, and major renovations of existing outpatient clinical sites at Yale University. Major renovations include planned changes and updates to an existing facility, renovation project that includes modification of an entire area in a building to accommodate a new use, or a change in function in an area of an existing building. This document is applicable to Yale University-owned and leased properties.

The information contained in this document is intended to be a supplement, as all outpatient clinical spaces must be designed to comply with Yale University Design Standards for Capital Projects and all applicable codes, including local, state, and federal codes. For this document, outpatient clinical sites refer to sites that:

- Provide ambulatory medical care for diagnosis, treatment, and care of persons with chronic or acute conditions or medical care to well persons including preventive services and maintenance of health or
- Conduct human subjects research where biological specimens are, or may be, obtained, used, or analyzed.

When renovating or expanding existing facilities, it is not always practical or financially feasible to renovate or upgrade an entire existing facility to conform with the information outlined in this document. Yale Environmental Health and Safety (EHS) may grant approval to renovate portions of a structure, space, or system if facility operations and patient safety in renovated and existing areas are not jeopardized by existing features of areas retained without complete corrective measures. Additionally, minor renovation or replacement work (i.e., replacement of building furnishings, cosmetic changes or upgrades to an existing space, routine repairs, and maintenance) are permitted to be exempted from these requirements.

Various standards are referenced throughout this document. For quick reference, standards are cited in applicable sections. A complete list of the design and safety standards and codes cited in this document are listed in Appendix A: Clinic Design Codes and Standards.

Glossary

Functions of Space

Clean Supply Room: A room used only for storage and holding as part of a system for distribution of clean and sterile materials Note: May be omitted if space permits in clean work room

Clean Work Room: A room used for preparing patient care items, as well as for storage and distribution of clean supply materials. Typically part of two-room sterile processing, along with a decontamination/instrument processing room

Clinical Laboratory: A lab where tests are conducted on clinical specimens to obtain information about the health of a patient or research subject to aid in diagnosis, treatment, or prevention of disease. The use of certain aerosol-generating equipment must be done in a space that meets clinical laboratory design specifications, including:

- Centrifugation
- Pipetting
- Vortexing
- Mixing
- Shaking
- Sonicating
- Removing caps
- Decanting liquids
- Preparing smears
- Flaming slides
- Aliquoting and loading specimens
- Loading syringes
- Manipulating needles, syringes or sharps
- Aspirating and transferring blood and body fluids
- Subculturing blood culture bottles

Decontamination/ Instrument Processing room: Required for cleaning and disinfecting reusable medical devices/surgical instruments. Typically part of a two-room sterile processing, along with a clean work room

Exam Room: A room designated for the performance of patient care or human subjects' activities that may require high-level disinfected or sterile instruments, but do not require the environmental controls of a procedure room. Examples of treatments or procedures that may be done in an exam room include:

- Blood draws
- Eye exams
- Measurements of blood pressure or pulse oximetry
- Physical Exams

- Injections/shots
- Minor cuts and sprains (including wound packing)
- Stitches and casting
- Minor dermatological procedures (including removal of skin tags)
- PICC (percutaneously inserted central catheter) line placement and removal
- Needle biopsies
- EEG or EKG
- Lumbar puncture

Mobile/transportable medical unit: Any trailer or self-propelled unit equipped with a chassis on wheels, without a permanent foundation, and intended for provision of medical services on a temporary basis. Note: These units are maintained and equipped to be moved.

Outpatient Surgery Site: Where same-day surgery is performed

Patient Care Station: A designated space for the performance of a specific patient care function for one patient at a time.

Procedure Room: A room designated for the performance of patient care activities that may require high-level disinfected or sterile instruments and some environmental controls but do not require the environmental controls of an operating room:

- Implantation of IV ports
- Placement of temporary foreign bodies
- Gastrointestinal endoscopy
- Various ENT procedures
- Requires risk assessment regarding:
    - Level of invasiveness, likelihood of infection
    - Type of sedation used to conduct procedure
    - Number of staff expected in the room during procedure
    - Equipment needed to support the procedure

Support areas (for patient care units, diagnostic and treatment areas, etc.): Designated spaces or areas in which staff members perform auxiliary functions that support the main purpose of the unit or other location. Note: Where the word “room” or “office” is used, a separate, enclosed space for the one named function is intended. Otherwise, the described area is permitted to be a specific space in another room or common area.

Support areas (for patients, families, and/or visitors): Designated spaces for the use of patients, clients, participants, or visitors. Note: Where the word “room” or “office” is used, a separate, enclosed space for the one named function is intended. Otherwise, the described area is permitted to be a specific space in another room or common area.

Soiled Holding Room: Required for temporary storage of soiled materials and/or supplies prior to their removal from the facility Note: May be omitted if space permits in soiled work room

Soiled Work Room: Required when handling and preparing soiled items for subsequent cleaning, disposal, or reuse. Examples include:

- Emptying and rinsing bedpans or emesis basins
- Emptying or solidifying suction canisters
- Rinsing and gross cleaning of medical instruments
- Temporary storage for soiled items prior to their removal from the unit

Definitions

Biomedical waste: Waste that contains or has come into contact with bacteria or other pathogens, blood, or body fluids

Clinical sink: A flushing-rim sink or "hopper" used for disposal of blood or body fluids. Note: This is not the same as a handwashing sink or an instrument-cleaning sink (single-or double-sink type)

Documentation area: A work area associated with or near a patient care area where information specific to patients is recorded, stored, and reviewed to facilitate ready access by authorized individuals

Handwashing station: An area that has cleansing agents, a means for drying hands, and a sink with a faucet that can be operated without using hands

Infusion services: Includes antibiotics/antivirals, anticoagulation therapies, antiemetics, antihemophilic factors, colony-stimulating factors, enteral nutrition, total parenteral nutrition, hydration, inotropic therapies, pain management, and chemotherapy

Safety risk assessment: An assessment of the potential risks to a patient inherent in each space and building component of the health care project being planned

Design, Construction, and Commissioning

Design

1. In addition to those design standards set forth by Yale Facilities, University Planning, the design of new outpatient clinical sites and major renovations of existing outpatient clinical sites at Yale University shall adhere to the standards outlined in this document.
2. Yale EHS shall be informed of design plans for new construction of outpatient sites and major renovations of existing outpatient sites.
3. Yale EHS shall provide input and guidance on various design elements, including HVAC systems, water/plumbing systems, and surfaces and furnishings. EHS shall also provide guidance on additional safety features as outlined in these standards.

Construction

1. Project managers/designers shall review the building project checklist prior to property acquisition or major renovation
2. Prior to renovation or construction, notify Yale EHS to determine if environmental sampling or inspection is required
3. Prior to renovation or construction, complete and adhere to an Infection Control Risk Assessment (ICRA).

Commissioning

1. Projects that involve installation of new or modification to existing physical environment elements critical to patient care and safety, should at minimum have the following systems commissioned:
    a. Applicable general, mechanical, and electrical systems as outlined by Yale Facilities University Planning. This includes:
        i. Fire alarm systems, fire protection/fire pumps, and conveying systems (Yale Office of the Fire Marshal)
        ii. Security and wireless communication systems (Yale Security and Yale ITS)
    b. New patient care equipment by manufacturer
        i. Radiation therapy equipment should also be reviewed by Yale EHS
2. Project managers and/or site managers shall ensure the following conditions have been met prior to clinic site opening:
    a. Obtain appropriate safety signage and labels from Yale EHS
    b. Obtain Yale EHS certification for clinical laboratory equipment such as fume hoods or biosafety cabinets (if applicable)
    c. Coordinate biomedical and chemical waste management with Yale EHS
    d. Coordinate radioactive waste management with Yale EHS (if applicable)

<table>
<tr><th colspan="7">Specific Design Requirements for General Outpatient Clinical Sites</th><th>Standards Referenced</th></tr>
<tr><td colspan="8">Patient Care and Diagnostic Areas</td></tr>
<tr><td colspan="8">General</td></tr>
<tr><td colspan="7">1. All surfaces, equipment, and furniture shall be easily cleanable. Carpet is permitted only in waiting rooms, hallways, and administrative/office areas
2. When used, needle box sharps containers must be locked and mounted on the wall:
• For standing workstation, 52 to 56 inches above the standing surface of the user
• For seated workstation, 38 to 42 inches above the floor on which the chair rests
3. Where sharps (i.e., needles, scalpels) are stored in exam rooms, they shall be stored in a locked cabinet</td><td>Infection Control in Ambulatory Care (APIC, 2004)

Selecting, Evaluating, and Using Sharps Disposal Containers (NIOSH, 1998)</td></tr>
<tr><td colspan="8">Exam Rooms</td></tr>
<tr><td rowspan="2">1. Exam rooms shall have a minimum clear floor area of 80 square feet.
2. Exam rooms shall contain:
• Portable or fixed exam light
• Storage for supplies
• Accommodations for written and/or electronic documentation
• Space for a visitor’s chair
• Handwashing station*
• Clinic sites that use formalin, including small volumes in pre-filled sample containers, must have an ANSI-approved emergency eyewash in the room where formalin is handled
3. Flooring is cleanable and slip resistant. Wall finishes are washable.

*Risk assessment can be conducted to determine if alcohol-based hand sanitizer is sufficient method of hand hygiene</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)

CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings (CDC, 2022)</td></tr>
<tr><td>No Requirement</td><td>2</td><td>4</td><td>MERV-8</td><td>No Requirement</td></tr>
</table>

Procedure/Diagnostic/Treatment Rooms

1. Procedure rooms shall have a minimum floor area of 130 square feet.
2. Procedure rooms shall contain:
   - Accommodations for written and/or electronic documentation
   - Handwashing station
   - Clinic sites that use formalin, including small volumes in pre-filled sample containers, must have an ANSI-approved emergency eyewash in the room where formalin is handled
   - Flooring is cleanable and slip resistant. Wall finishes are washable. Ceiling is smooth and without crevices
   - Clinic sites with a procedure room must also have a clean storage or workroom and soiled holding area or workroom
3. Where inhalation anesthesia, including nitrous oxide, will be used, a waste anesthetic gas disposal system shall be provided. Use of portable equipment shall be permitted.

Pressure Relationship to Adjacent Areas	**Minimum Outdoor ACH**	**Minimum Total ACH**	**Filter**	**All Room Air Exhausted Directly Outdoors?**
Varies*	2 – 4	6 – 20	MERV-8 to MERV-16	Some applications require air to be directly exhausted outdoors

**Varies depending on specific application. Procedures that require different relationships cannot be provided in the same procedure room.*

Procedures that require negative pressure include bronchoscopies, surgery and post-mortem procedures involving high-speed devices, induction of sputum, nebulizer treatment, and upper ENT airway procedures that involve suctioning.

Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)

Aerosol generating procedures, dysphagia assessment and COVID-19 (Royal College of Speech and Language Therapists, 2020)

Support Areas for Patient Care and Diagnostic Areas

Clinical Laboratory

1. Where lab tests are performed on-site, a separate, dedicated room shall be provided. Tests that are waived by the Food and Drug Administration (FDA) under the Clinical Laboratory Improvement Amendments (CLIA) should be permitted to be performed in areas open to other spaces
2. Laboratory equipment, including centrifuges, mixers and rockers, biosafety cabinets, and microscopes must be used in the laboratory. Equipment may not be used in any other areas of the clinic without an approved EHS risk assessment.
3. Laboratory workstation should consist of:
   - Work counter and sink
   - ANSI-approved emergency eyewash
   - ANSI-approved emergency shower*
4. Storage shall be provided for reagents, specimens, flammable materials, acids, bases, and other supplies used in the laboratory
5. The use of stainers, tissue processers, or other equipment that contains/uses hazardous chemicals require local exhaust ventilation, such as a fume hood. See Guidelines for Safe Laboratory Design.
6. If used, liquid nitrogen must be stored where there is adequate exhaust ventilation to prevent an oxygen deficient atmosphere. Oxygen detection may be required in some locations.
7. Where a refrigerator is used to store blood, tissue, or pathological specimens, it shall be equipped with temperature monitoring and alarm signals

** The use of stainers, tissue processers, or other equipment that contains/uses hazardous chemicals may also require an ANSI-approved emergency shower*

Pressure Relationship to Adjacent Areas	Minimum Outdoor ACH	Minimum Total ACH	Filter	All Room Air Exhausted Directly Outdoors?
Negative	**2**	**6**	**MERV-8**	**Yes**

See also **Guidelines for Safe Laboratory Design** for additional information on:

- General Design
- Infrastructure
- Plumbing
- Electrical
- Biosafety Cabinets
- Laboratory General Ventilation Design
- Local Laboratory Exhaust Ventilation
- Gas systems
- Refrigerators and freezers
- Regulated Lab Waste
- Specialty Room Design Considerations
- Lab Commissioning
- Special Operations

Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)

Guidelines for Safe Laboratory Design (Yale Environmental Health and Safety, 2021)

29 CFR 1910.151(c) OSHA (Department of Labor, 1998)

42 CFR 493.1278 CLIA (Centers for Medicare & Medicaid Services, 1988)

<table>
<tr><td colspan="7">Specimen/Blood collection</td></tr>
<tr><td rowspan="2">1. Areas where blood collection will be done shall contain the following:
• Work counter
• Seating space for patients
• Handwashing station
• Supply storage
• ANSI-approved emergency eyewash
2. Blood draw location is not near other hazards such as radioactive isotopes, biohazards or chemical hazards.
3. Groups seeking to draw blood for patients must first complete an application for blood collection facility certification and be inspected by CT DPH</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)

Checklist for Use of Endogenous Tissues in Labs (Yale Environmental Health and Safety, 2021)</td></tr>
<tr><td>Negative</td><td>2</td><td>6</td><td>MERV-8</td><td>Yes</td></tr>
<tr><td colspan="7">Two-room sterile processing (Clean workroom and Decontamination room)</td></tr>
<tr><td colspan="7">Clean Workroom</td></tr>
<tr><td rowspan="2">1. A clean workroom or a clean supply room shall be provided. At a small clinical site, a closet shall be acceptable for a clean supply room.
2. The clean workroom shall contain the following:
• Work counter
• Handwashing station
• ANSI-compliant emergency eyewash
• Storage for sterilization supplies and instruments
• Documentation area
3. If a steam sterilizer is used, it must be used and stored in the clean workroom.</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>Positive</td><td>2</td><td>6, 4 if 100% outside air</td><td>MERV-8</td><td>No requirement</td></tr>
</table>

<table>
<tr><td colspan="7">Decontamination/Instrument Processing Room</td></tr>
<tr><td rowspan="3">1. The decontamination room shall contain the following:
• Work counter
• Sinks
  • (1) Sink for handwashing
  • (1) Sink for gross decontamination of instruments
• Space for waste and soiled linen receptacles
• Documentation area
• Storage for decontamination supplies and PPE
• ANSI-compliant emergency eyewash
• ANSI-compliant emergency shower if corrosive chemicals/products could cause splash to body</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="3">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>Negative</td><td>2</td><td>6</td><td>MERV-8</td><td>Yes*</td></tr>
<tr><td colspan="5">*Recirculation within room permissible

Rooms may require local exhaust ventilation or direct connection of disinfection units to exhaust depending on type of disinfection/chemical involved</td></tr>
<tr><td colspan="7">One-room sterile processing (Clean work area and Decontamination area)</td></tr>
<tr><td rowspan="2">1. One-room sterile processing shall consist of a decontamination area and a clean work area
2. The clean work area shall be equipped with the following:
• Countertop
• Sterilizer as required for the services provided
• Storage for supplies
3. The decontamination area shall be equipped with the following:
• Countertop
• Two-basin sink for washing instruments*</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>No Requirement</td><td>2</td><td>6</td><td>MERV-14</td><td>No Requirement</td></tr>
</table>

<table>
<tr><td>

- Handwashing sink separate from the instrument-washing sink
- Storage for supplies
- ANSI-compliant emergency eyewash
- ANSI-compliant emergency shower if corrosive chemicals/products could cause splash to body

</td><td colspan="5">*To avoid splash, the instrument-washing sink shall be separated from the clean work area by either a 4-foot distance from the edge of the sink or a separating wall or screen. If a screen is used, it shall extend a minimum of 4 feet above the sink rim.</td><td></td></tr>
<tr><td colspan="7">Soiled Holding Room</td></tr>
<tr><td rowspan="2">1. The soiled holding room should be equipped with the following:
• Handwashing station or hand sanitation dispenser
• Space for separate covered containers for waste and soiled linen</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>Negative</td><td>2</td><td>6</td><td>MERV-8</td><td>Yes</td></tr>
<tr><td colspan="7">Soiled Workroom</td></tr>
<tr><td rowspan="2">1. The soiled work room should be equipped with the following:
• Handwashing station
• Flushing-rim clinical service sink or equivalent flushing device where clinical services require emptying suction canisters or gross cleaning of medical instruments
• Utility sink where clinical services do not require a flushing-rim fixture
• Work counter
• Space for separate covered containers for waste and soiled linen
• ANSI-compliant emergency eyewash
• ANSI-compliant emergency shower if corrosive chemicals/products could cause splash to body</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>Negative</td><td>2</td><td>6</td><td>MERV-8</td><td>Yes</td></tr>
</table>

Specific Design Requirements for Specialty Outpatient Clinical Sites - Behavioral and Mental Health	Standards Referenced
Patient Care and Diagnostic Areas	
Consultation, Group, and Observation rooms	
1. Where the need is indicated by a safety risk assessment, the following should be provided: • Space for a clear path of escape for staff • A staff assist device to communicate with other staff internally, or another entity externally, when assistance is needed 2. The following space requirements (minimum clear floor area): • Consultation room: 100 sq. ft. • Observation room: 80 sq. ft. • Group room*: 105 sq. ft. (plus additional increments of 15 sq. ft. per person beyond 5 people) **At least one door into a group room shall swing out or be double-acting*	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)
Public and Administrative Areas	
General	
1. A reception/information counter, desk, or kiosk shall be provided and be immediately visible from the entrance and provide staff with visual observation to the entrance. 2. The waiting area should be under direct visual control of reception desk staff or monitored via electronic surveillance. 3. Where the safety risk assessment identifies suicide risk or staff safety concerns, architectural details, fixtures, and furnishings shall be tamper-and ligature-resistant in patient treatment areas. 4. Doors to patient restrooms shall swing outward or have hardware that is double-acting and allows staff to control access.	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

Specific Design Requirements for Specialty Outpatient Clinical Sites – Mobile/Transportable Medical Units		Standards Referenced
Class 1 Medical Unit		
General		
1. The following support areas shall be provided in a Class 1 mobile medical unit (or in the host site but readily accessible): • Clean workroom or clean supply room, a cabinet or closet shall be permitted to meet this requirement • Soiled workroom, a cabinet or closet shall be permitted to meet this requirement • Equipment and supply storage • Environmental services closet 2. Certification shall be provided in one of the following ways: • The manufacturer of the mobile/transportable medical unit shall provide the governing body with drawings of the unit that have been signed and sealed by an architect or professional engineer. • A third-party nationally recognized testing laboratory (NRTL) shall provide the governing body with a field inspection report certifying the unit meets requirements 3. The mobile unit should have on-site and available for review records of compliance with the following: • Fire ratings of all structural materials and finishes • Testing and calibration records, including those for: air balancing, air filtration, sprinklers (where provided), biomedical equipment, and electrical systems testing 4. Safeguards shall be in place to prevent movement of the unit while in use. 5. A minimum separation of 25 feet shall be provided between any building outside air intake and any HVAC or generator exhaust from the unit. 6. A fire extinguisher shall be provided.	*HVAC equipment, ductwork, and related equipment shall be installed in accordance with NFPA 90A: Standard for the Installation of Air-Conditioning and Ventilating Systems*	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022) NFPA 10 Standard for Portable Fire Extinguishers (NFPA, 2022) NFPA 90A Standard for the Installation of Air-Conditioning and Ventilating Systems (NFPA, 2024)

<table>
<tr><th colspan="2">Specific Design Requirements for Specialty Outpatient Clinical Sites – Infusion Centers</th><th colspan="5">Ventilation Requirements</th><th>Standards Referenced</th></tr>
<tr><td colspan="8">Patient Care and Diagnostic Areas</td></tr>
<tr><td colspan="8">Infusion Areas</td></tr>
<tr><td colspan="2" rowspan="2">1. The infusion area shall be separate from administrative and waiting areas. This can be an open-plan area.
2. Individual patient care stations shall be permitted to be any combination of bays, cubicles and single-patient rooms.
3. The infusion area shall contain:
• Provisions for visual privacy
• Handwashing station
• Patient restroom that is immediately accessible to infusion area</td><td>Pressure Relationship to Adjacent Areas</td><td>Minimum Outdoor ACH</td><td>Minimum Total ACH</td><td>Filter</td><td>All Room Air Exhausted Directly Outdoors?</td><td rowspan="2">Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

ASHRAE 170-2021 Ventilation of Health Care Facilities (ASHRAE, 2021)</td></tr>
<tr><td>NR</td><td>2</td><td>6</td><td>MERV-8</td><td>NR</td></tr>
</table>

Specific Design Requirements for Outpatient Surgery Sites	Standards Referenced
Patient Care and Diagnostic Areas	
General	
1. Signs that clearly indicate where surgical attire is required shall be provided at all entrances to semi-restricted areas.	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)
Support Areas	
Soiled Workroom or Soiled Holding Room	
1. A soiled workroom or soiled holding room shall be provided at the outpatient surgery site 2. The soiled workroom or soiled holding room shall not have direct connection with operating rooms clean workrooms or clean supply rooms, or other sterile activity rooms 3. The soiled workroom or soiled holding room shall meet the requirements as indicated above	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)
Clean Equipment and Clean and Sterile Supply Storage	
1. Storage space shall be provided for clean equipment and clean and sterile supplies used for surgeries	
Equipment and Supply Storage	
1. Storage for clean linen shall be provided. Location of clean linen storage in the clean supply and equipment room shall be permitted. 2. Space for supply and storage of medical gas(es) used at the site, including space for reserve cylinders, shall be provided and protected 3. Where equipment-intensive procedures are performed or large mobile equipment is used for surgery, storage space shall be provided	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)
Storage for Blood, Tissue, and Pathological Specimens	
1. Provisions for storage of blood, tissue, and pathological specimens, including equipment, temperature controls, alarms, and monitoring, shall meet the requirements of the Clinical Laboratory Improvement Amendments (CLIA) and other applicable regulatory requirements. 2. Where a refrigerator is used to store patient specimens or reagents, it shall be equipped with temperature monitoring and alarm signals; this includes refrigerators holding specimens waiting for a courier to pick them up for further testing	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)
Design and Construction Requirements	
Architectural Details, Surfaces, and Furnishings	
1. Where corridors are used for stretcher and gurney transport, at least one corridor that connects the surgical suite and the PACU to an exit shall have a minimum width of 6 feet	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

Communications Systems	
1. All operating rooms and recovery rooms shall be equipped with an emergency communication system that incorporates push activation of an emergency call switch	Guidelines for Design and Construction of Outpatient Facilities (The Facility Guidelines Institute, 2022)

Appendix A: Clinic and Safety Design Codes and Standards

American National Standards Institute (ANSI) / American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). (2018). Guidance to Help Minimize the Risk of Legionellosis. ANSI/ASHRAE 188-2018. https://www.ashrae.org/file%20library/technical%20resources/bookstore/86611_188-2018preview.pdf

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). (2021). Ventilation of Health Care Facilities. ASHRAE 170 2021. https://www.ashrae.org/file%20library/technical%20resources/standards%20and%20guidelines/standards%20addenda/170_2021_c_2210730.pdf

Association for Professionals in Infection Control and Epidemiology (APIC). (2004). APIC Text of Infection Control and Epidemiology, 4th Edition. https://apic.org/resources/apic-text/

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Appendix B: Matrix of Precautions for Construction, Renovation and Operations

Infection Control Risk Assessment 2.0
Matrix of Precautions for Construction, Renovation and Operations

Step One:
Using Table 1, Identify the Activity Type (A-D).

Table 1 - Activity Type: _____

Type A	**Inspection and non-invasive activities.** Includes but is not limited to: • Removal of ceiling tile for visual inspection-limited to 1 tile per 50 square feet with limited exposure time. • Limited building system maintenance (e.g., pneumatic tube station, HVAC system, fire suppression system, electrical and carpentry work to include painting without sanding) that does not create dust or debris. • Clean plumbing activity limited in nature.
Type B	**Small-scale, short duration activities that create minimal dust and debris.** Includes but is not limited to: • Work conducted above the ceiling (e.g., prolonged inspection or repair of firewalls and barriers, installation of conduit and/or cabling, and access to mechanical and/or electrical chase spaces). • Fan shutdown/startup. • Installation of electrical devices or new flooring that produces minimal dust and debris. • The removal of drywall where minimal dust and debris is created. • Controlled sanding activities (e.g., wet or dry sanding) that produce minimal dust and debris.
Type C	**Large-scale, longer duration activities that create a moderate amount of dust and debris.** Includes but is not limited to: • Removal of preexisting floor covering, walls, casework or other building components. • New drywall placement. • Renovation work in a single room. • Non-existing cable pathway or invasive electrical work above ceilings. • The removal of drywall where a moderate amount of dust and debris is created. • Dry sanding where a moderate amount of dust and debris is created. • Work creating significant vibration and/or noise. • Any activity that cannot be completed in a single work shift.
Type D	**Major demolition and construction activities.** Includes but is not limited to: • Removal or replacement of building system component(s). • Removal/installation of drywall partitions. • Invasive large-scale new building construction. • Renovation work in two or more rooms.

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Step Two:

Using Table 2, identify the Patient Risk Group(s) that will be affected. If more than one risk group will be affected, select the higher risk group.

Table 2 - Patient Risk Group: _____

Low Risk Non-patient care areas such as:	Medium Risk Patient care support areas such as:	High Risk Patient care areas such as:	Highest Risk Procedural, invasive, sterile support and highly compromised patient care areas such as:
• Public hallways and gathering areas not on clinical units. • Office areas not on clinical units. • Breakrooms not on clinical units. • Bathrooms or locker rooms not on clinical units. • Mechanical rooms not on clinical units. • EVS closets not on clinical units.	• Waiting areas. • Clinical engineering. • Materials management. • Sterile processing department - dirty side. • Kitchen, cafeteria, gift shop, coffee shop, and food kiosks.	• Patient care rooms and areas • All acute care units • Emergency department • Employee health • Pharmacy - general work zone • Medication rooms and clean utility rooms • Imaging suites: diagnostic imaging • Laboratory.	• All transplant and intensive care units. • All oncology units. • OR theaters and restricted areas. • Procedural suites. • Pharmacy compounding. • Sterile processing department - clean side. • Transfusion services. • Dedicated isolation wards/units. • Imaging suites: invasive imaging.

Step Three:

Match the Patient Risk Group (*Low, Medium, High, Highest*) from Step Two with the planned Construction Activity Project Type (*A, B, C, D*) from Step One using Table 3 to find the Class of Precautions (*I, II, III, IV or V*) or level of infection control activities required. The activities are listed in Table 5 – Minimum Required Infection Control Precautions by Class.

Table 3 - Class of Precautions: _____

Patient Risk Group	Construction Project Type			
	TYPE A	TYPE B	TYPE C	TYPE D
LOW Risk Group	I	II	II	III*
MEDIUM Risk Group	I	II	III*	IV
HIGH Risk Group	I	III	IV	V
HIGHEST Risk Group	III	IV	V	V

Infection control permit and approval will be required when Class of Precautions III (Type C) and all Class of Precautions IV or V are necessary.

Environmental conditions that could affect human health, such as sewage, mold, asbestos, gray water and black water will require Class of Precautions IV for LOW and MEDIUM Risk Groups and Class of Precautions V for HIGH and HIGHEST Risk Groups.

***Type C [Medium Risk groups] and Type D [Low Risk Groups] work areas [Class III precautions] that cannot be sealed and completely isolated from occupied patient care spaces should be elevated to include negative air exhaust requirements as listed in Class IV Precautions.**

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Step Four:

Assess potential risk to areas surrounding the project. Using Table 4, identify the surrounding areas that will be affected and the type of impact that will occur. If more than one risk group will be affected, select the higher risk group using Table 2 - Patient Risk Group.

Table 4 - Surrounding Area Assessment

Unit Below:	Unit Above:	Unit Lateral:	Unit Behind:	Unit in Front:
Risk Group:	Risk Group:	Risk Group:	Risk Group:	Risk Group:
Contact:	Contact:	Contact:	Contact:	Contact:
Phone:	Phone:	Phone:	Phone:	Phone:
Additional Controls: ☐ Noise ☐ Vibration ☐ Dust control ☐ Ventilation ☐ Pressurization ☐ Vertical Shafts ☐ Elevators/Stairs **Systems impacted:** ☐ Data ☐ Mechanical ☐ Med Gases ☐ Hot/Cold Water	**Additional Controls**: ☐ Noise ☐ Vibration ☐ Dust control ☐ Ventilation ☐ Pressurization ☐ Vertical Shafts ☐ Elevators/Stairs **Systems impacted:** ☐ Data ☐ Mechanical ☐ Med Gases ☐ Hot/Cold Water	**Additional Controls**: ☐ Noise ☐ Vibration ☐ Dust control ☐ Ventilation ☐ Pressurization ☐ Vertical Shafts ☐ Elevators/Stairs **Systems impacted:** ☐ Data ☐ Mechanical ☐ Med Gases ☐ Hot/Cold Water	**Additional Controls**: ☐ Noise ☐ Vibration ☐ Dust control ☐ Ventilation ☐ Pressurization ☐ Vertical Shafts ☐ Elevators/Stairs **Systems impacted:** ☐ Data ☐ Mechanical ☐ Med Gases ☐ Hot/Cold Water	**Additional Controls**: ☐ Noise ☐ Vibration ☐ Dust control ☐ Ventilation ☐ Pressurization ☐ Vertical Shafts ☐ Elevators/Stairs **Systems impacted:** ☐ Data ☐ Mechanical ☐ Med Gases ☐ Hot/Cold Water

Noise & Vibration Mitigation Strategies

- ☐ Use diamond drills instead of powder-actuated fasteners.
- ☐ Schedule noise-making periods with adjacent spaces.
- ☐ Use beam clamps instead of shot.
- ☐ Prefab where possible.
- ☐ Use tin snips to cut metal studs instead of using a chop saw.
- ☐ Install metal decking with vent tabs, then use cellular floor deck hangers.
- ☐ Consider compression style fittings instead of soldering, brazing or welding.
- ☐ Wet core drill instead of dry core or percussion.
- ☐ Instead of jackhammering concrete, use wet diamond saws.
- ☐ Use HEPA vacuums instead of standard wet/dry vacuums.
- ☐ Use mechanical joining system sprinkler fittings instead of threaded.
- ☐ Where fumes are tolerated, use chemical adhesive remover (flooring glue) instead of mechanical.
- ☐ To remove flooring, consider abrasive blasting instead of using a floor scraper.
- ☐ Use electric sheers instead of reciprocating saw for ductwork cutting.
- ☐ Install exterior man/material lifts.

Ventilation & Pressurization Mitigation Strategies

- ☐ HEPA to exterior.
- ☐ Install temporary ductwork.
- ☐ Utilize temporary HVAC equipment.
- ☐ Vacate the area.
- ☐ Install temporary partitions.
- ☐ Use carbon filtration to filter odors.

Impact to Other Systems Mitigation Strategies

- ☐ Schedule outages.
- ☐ Provide temporary systems.
- ☐ Back-feed electricity or medical gases.

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Infection Control Risk Assessment 2.0
Matrix of Precautions for Construction, Renovation and Operations

Table 5 - Minimum Required Infection Control Precautions by Class | Before and During Work Activity

Class of Precautions	Mitigation Activities (Performed Before and During Work Activity)
Class I	1. Perform noninvasive work activity as to not block or interrupt patient care. 2. Perform noninvasive work activities in areas that are not directly occupied with patients. 3. Perform noninvasive work activity in a manner that does not create dust. 4. Immediately replace any displaced ceiling tile before leaving the area and/or at end of noninvasive work activity.
Class II	1. Perform only limited dust work and/or activities designed for basic facilities and engineering work. 2. Perform limited dust and invasive work following standing precautions procedures approved by the organization. 3. This Class of Precautions must never be used for construction or renovation activities.
Class III	1. Provide active means to prevent airborne dust dispersion into the occupied areas. 2. Means for controlling minimal dust dispersion may include hand-held HEPA vacuum devices, polyethylene plastic containment, or isolation of work area by closing room door. 3. Remove or isolate return air diffusers to avoid dust from entering the HVAC system. 4. Remove or isolate the supply air diffusers to avoid positive pressurization of the space, 5. If work area is contained, then it must be neutrally to negatively pressurized at all times. 6. Seal all doors with tape that will not leave residue. 7. Contain all trash and debris in the work area. 8. Nonporous/smooth and cleanable containers (with a hard lid) must be used to transport trash and debris from the construction areas. These containers must be damp-wiped cleaned and free of visible dust/debris before leaving the contained work area. 9. Install an adhesive (dust collection) mat at entrance of contained work area based on facility policy. Adhesive mats must be changed routinely and when visibly soiled. 10. Maintain clean surroundings when area is not contained by damp mopping or HEPA vacuuming surfaces.
Class IV	1. Construct and complete critical barriers meeting NFPA 241 requirements including: Barriers must extend to the ceiling or, if ceiling tile is removed, to the deck above, and all penetrations through the barrier shall meet the appropriate fire rating requirements. 2. All (plastic or hard) barrier construction activities must be completed in a manner that prevents dust release. Plastic barriers must be effectively affixed to ground and ceiling and secure from movement or damage. Apply tape that will not leave a residue to seal gaps between barriers, ceiling or floor. 3. Seal all penetrations in containment barriers, including floors and ceiling, using approved materials (UL schedule firestop if applicable for barrier type). 4. Containment units or environmental containment units (ECUs) approved for Class IV precautions in small areas totally contained by the unit and that has HEPA-filtered exhaust air. 5. Remove or isolate return air diffusers to avoid dust entering the HVAC system. 6. Remove or isolate the supply air diffusers to avoid positive pressurization of the space. 7. Negative airflow pattern must be maintained from the entry point to the anteroom and into the construction area. The airflow must cascade from outside to inside the construction area. The entire construction area must remain negatively pressurized. 8. Maintain negative pressurization of the entire workspace by use of HEPA exhaust air systems directed outdoors. Exhaust discharged directly to the outdoors that is 25 feet or greater from entrances, air intakes and windows does not require HEPA-filtered air. 9. If exhaust is directed indoors, then the system must be HEPA filtered. Prior to start of work, HEPA filtration must be verified by particulate measurement as no less than 99.97% efficiency and must not alter or change airflow/pressure relationships in other areas. 10. Exhaust into shared or recirculating HVAC systems, or other shared exhaust systems (e.g., bathroom exhaust) is not acceptable. 11. Install device on exterior of work containment to continually monitor negative pressurization. To assure proper pressure is continuously maintained, it is recommended that the device(s) have a visual pressure indicator. 12. Contain all trash and debris in the work area.

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	13. Nonporous/smooth and cleanable containers (with a hard lid) must be used to transport trash and debris from the construction areas. These containers must be damp-wiped cleaned and free of visible dust/debris before leaving the contained work area. 14. Worker clothing must be clean and free of visible dust before leaving the work area. HEPA vacuuming of clothing or use of cover suits is acceptable. 15. Workers must wear shoe covers prior to entry into the work area. Shoe covers must be changed prior to exiting the anteroom to the occupied space (non-work area). Damaged shoe covers must be immediately changed. 16. Install an adhesive (dust collection) mat at entrance of contained work area based on facility policy. Adhesive mats must be changed routinely and when visibly soiled. 17. Consider collection of particulate data during work to monitor and ensure that contaminates do not enter the occupied spaces. Routine collection of particulate samples may be used to verify HEPA filtration efficiencies.
Class V	1. Construct and complete critical barriers meeting NFPA 241 requirements including: Barriers must extend to the ceiling, or if ceiling tile is removed, to the deck above, and all penetrations through the barrier shall meet the appropriate fire rating requirements. 2. All (plastic or hard) barrier construction activities must be completed in a manner that prevents dust release. Plastic barriers must be effectively affixed to ground and ceiling and secure from movement or damage. Apply tape that will not leave a residue to seal gaps between barriers, ceiling or floor. 3. Seal all penetrations in containment barriers, anteroom barriers, including floors and ceiling using approved materials (UL schedule firestop if applicable for barrier type). 4. Construct anteroom large enough for equipment staging, cart cleaning, workers. The anteroom must be constructed adjacent to entrance of construction work area. 5. Personnel will be required to wear disposable coveralls at all times during Class V work activities. Disposable coveralls must be removed before leaving the anteroom. 6. Remove or isolate return air diffusers to avoid dust entering the HVAC system. 7. Remove or isolate the supply air diffusers to avoid positive pressurization of the space. 8. Negative airflow pattern must be maintained from the entry point to the anteroom and into the construction area. The airflow must cascade from outside to inside the construction area. The entire construction area must remain negatively pressurized. 9. Maintain negative pressurization of the entire workspace using HEPA exhaust air systems directed outdoors. Exhaust discharged directly to the outdoors that is 25 feet or greater from entrances, air intakes and windows does not require HEPA-filtered air. 10. If exhaust is directed indoors, then the system must be HEPA filtered. Prior to start of work, HEPA filtration must be verified by particulate measurement as no less than 99.97% efficiency and must not alter or change airflow/pressure relationships in other areas. 11. Exhaust into shared or recirculating HVAC systems, or other shared exhaust systems (bathroom exhaust) is not acceptable. 12. Install device on exterior of work containment to continually monitor negative pressurization. To assure proper pressure is continuously maintained, it is recommended that the device(s) have a visual pressure indicator. 13. Contain all trash and debris in the work area. 14. Nonporous/smooth and cleanable containers (with a hard lid) must be used to transport trash and debris from the construction areas. These containers must be damp-wiped cleaned and free of visible dust/debris before leaving the contained work area. 15. Worker clothing must be clean and free of visible dust before leaving the work area anteroom. 16. Workers must wear shoe covers prior to entry into the work area. Shoe covers must be changed prior to exiting the anteroom to the occupied space (non-work area). Damaged shoe covers must be immediately changed. 17. Install an adhesive (dust collection) mat at entrance of contained work area based on facility policy. Adhesive mats must be changed routinely and when visibly soiled. 18. Consider collection of particulate data during work to monitor and ensure that contaminates do not enter the occupied spaces. Routine collection of particulate samples may be used to verify HEPA filtration efficiencies.

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Infection Control Risk Assessment 2.0
Matrix of Precautions for Construction, Renovation and Operations

Table 6 - Minimum Required Infection Control Precautions | Upon Completion of Work Activity

Class of Precautions	Mitigation Activities (Performed upon Completion of Work Activity)
Classes I, II and III	Cleaning: 1. Clean work areas including all environmental surfaces, high horizontal surfaces and flooring materials. 2. Check all supply and return air registers for dust accumulation on upper surfaces as well as air diffuser surfaces. HVAC Systems: 1. Remove isolation of HVAC system in areas where work is being performed. Verify that HVAC systems are clean and operational. 2. Verify the HVAC systems meet original airflow and air exchange design specifications.
Classes III, IV and V	Class III (Type C Activities only), IV, and V precautions require inspection and documentation for downgraded ICRA precautions. Construction areas must be inspected by an infection preventionist or designee and engineering representative for discontinuation or downgrading of ICRA precautions. Work Area Cleaning: 1. Clean work areas including all environmental surfaces, high horizontal surfaces and flooring materials. 2. Check all supply and return air registers for dust accumulation on upper surfaces as well as air diffuser surfaces. Removal of Critical Barriers: 1. Critical barriers must remain in place during all work involving drywall removal, creation of dust and activities beyond simple touch-up work. The barrier may NOT be removed until a work area cleaning has been performed. 2. All (plastic or hard) barrier removal activities must be completed in a manner that prevents dust release. Use the following precautions when removing hard barriers: i. Carefully remove screws and painter tape. ii. If dust will be generated during screw removal, use hand-held HEPA vacuum. iii. Drywall cutting is prohibited during removal process. iv. Clean all stud tracks with HEPA vacuum before removing outer hard barrier. v. Use a plastic barrier to enclose area if dust could be generated. Negative Air Requirements: 1. The use of negative air must be designed to remove contaminates from the work area. 2. Negative air devices must remain operational at all times and in place for a period after completion of dust creating activities to remove contaminants from the work area and before removal of critical barriers. HVAC systems: 1. Upon removal of critical barriers, remove isolation of HVAC system in areas where work is being performed. 2. Verify that HVAC systems are clean and operational. 3. Verify the HVAC systems meets original airflow and air exchange design specifications.

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AHA Data & Insights

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ICRA 2.0 Infection Control Risk Assessment and Permit

ICRA 2.0 Infection Control Risk Assessment and Permit	Project Name:			
	ICRA Number:		Requested by	
Location of Work Activity			Project Start Date	
Estimated Duration			Completion Date	
Foreman/Supervisor			Phone	
Contractor Performing Work			Phone	
Approving Authority			Phone	

Please note that the above signature is approval of the work activity as described and assessed documented here.
Should the scope of work change or the discovery of additional toxic or biological substances.
STOP WORK and seek additional approval and guidance before proceeding.

1. Type of Activity	Explain this reasoning for this assessment
○ Type A: Non-invasive	
○ Type B: Small-scale, short duration	
○ Type C: Large-scale, longer duration	
○ Type D: Major demolition, construction	

2. Patient Risk Area	Describe key patient risks
○ Low: Non-patient care areas	
○ Medium: Patient care support areas	
○ High: Patient care areas	
○ Highest: Invasive, sterile or highly compromised care	

3. Class of Precautions				
	Type A	TYPE B	TYPE C	TYPE D
Low	○ I	○ II	○ II	○ III
Medium	○ I	○ II	○ III	○ IV
High	○ I	○ III	○ IV	○ V
Highest	○ III	○ IV	○ V	○ V

4. Surrounding Area					
Unit	Below:	Above:	Lateral:	Behind:	In Front:
Risk group					
Contact					
Phone					
Controls	☐ Noise ☐ Vibration ☐ Dust ☐ Ventilation ☐ Pressurization	☐ Noise ☐ Vibration ☐ Dust ☐ Ventilation ☐ Pressurization	☐ Noise ☐ Vibration ☐ Dust ☐ Ventilation ☐ Pressurization	☐ Noise ☐ Vibration ☐ Dust ☐ Ventilation ☐ Pressurization	☐ Noise ☐ Vibration ☐ Dust ☐ Ventilation ☐ Pressurization
Systems impacted:	☐ Data ☐ Mechanical ☐ Med Gas ☐ Hot/Cold Water ☐ Other	☐ Data ☐ Mechanical ☐ Med Gas ☐ Hot/Cold Water ☐ Other	☐ Data ☐ Mechanical ☐ Med Gas ☐ Hot/Cold Water ☐ Other	☐ Data ☐ Mechanical ☐ Med Gas ☐ Hot/Cold Water ☐ Other	☐ Data ☐ Mechanical ☐ Med Gas ☐ Hot/Cold Water ☐ Other

Were there discoveries in surrounding areas that would serve as cause to increase the class of precautions and necessitate additional controls? If so, please summarize.

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5. Detailed Plan of ICRA Controls for this Work	Class I				
Final Class of Precautions being applied	I	II	III	IV	V
Controls required for this project	Specifications/ Materials			Verification method and frequency	
Exceptions/Additions to this permit Date and Initials are noted by attached memoranda					
Initials			Date		
Permit Request By			Date		
Permit Authorized By			Date		
Approval Signature					

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ASHE AHA Data & Insights

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Appendix C: Legionella Control

University-owned buildings

Determine the following factors:

1. Does the clinic site include multiple housing units with one or more centralized potable water heater systems?
2. Is the building more than 10 stories high (including any levels that are below grade)?
3. Will this be a clinic where patient stays exceed 24 hours?
4. Will patients receive treatment for burns, chemotherapy for cancer, or solid organ transplantation or bone marrow transplantation?
5. Will the clinic see patients that are immunocompromised, are taking drugs that weaken the immune system, are otherwise at risk, have renal disease, have diabetes, or have chronic lung disease?
6. Will the clinic see patients who reside in over age 65 housing?

If the clinic site meets one or more of the above factors, notify Yale Environmental Health and Safety (ehs@yale.edu or 203-785-3550)

University-leased buildings

Determine the following factors:

1. See above "University-owned buildings" factors
2. Does the building contain any of the following devices:
    - Open- and closed-circuit cooling towers or evaporative condensers
    - Whirlpools or spas, either in the building or on the site
    - Ornamental fountains, misters, atomizers, air washes, humidifiers, or other non-potable water systems or devices that release water aerosols in the building or on the site.

If the clinic site meets one or more of the above factors, notify Yale Environmental Health and Safety (ehs@yale.edu or 203-785-3550)

For university-leased buildings meeting any of the factors, it is expected that the building management adhere to the latest edition of ASHRAE 188 potable building water systems requirements. For clinical spaces within buildings containing any of the above devices, it is expected that the building management adhere to the building water systems requirements of the ASHRAE Standard.

If the clinical space is located within a larger Health Care Facility, the ASHRAE standard allows Health Care Facilities to follow the Normative Annex A., Health Care Facilities portion of the ASHRAE Standard.

Additionally, the Centers for Medicare & Medicaid Services (CMS) expects Medicare certified healthcare facilities to have water management policies and procedures to reduce the risk of growth and spread of Legionella and other opportunistic pathogens in building water systems.

- Surveyors will review policies, procedures, and reports documenting water management implementation results to verify that facilities:

- Conduct a facility risk assessment to identify where Legionella and other opportunistic waterborne pathogens (e.g. Pseudomonas, Acinetobacter, Burkholderia, Stenotrophomonas, nontuberculous mycobacteria, and fungi) could grow and spread in the facility water system.
- Implement a water management program that considers the ASHRAE industry standard and the CDC toolkit, and includes control measures such as physical controls, temperature management, disinfectant level control, visual inspections, and environmental testing for pathogens.
- Specify testing protocols and acceptable ranges for control measures and document the results of testing and corrective actions taken when control limits are not maintained.

Healthcare facilities are expected to comply with CMS requirements to protect the health and safety of its patients. Those facilities unable to demonstrate measures to minimize the risk of LD are at risk of citation for non-compliance with the CMS Conditions of Participation. Accrediting organizations will be surveying healthcare facilities deemed to participate in Medicare for compliance with the requirements listed in this memorandum, as well, and will cite non-compliance accordingly.

Appendix D: Biomedical and Chemical Waste Management

Biomedical Waste

1. *Clinic sites < 20 minutes from New Haven*
    a. Serviced by Yale Environmental Affairs (EAS). Pickups on a regular schedule or scheduled via EHS Integrator.
    b. All biomedical waste containers provided by Yale EAS.
2. *Clinic sites > 20 minutes from New Haven*
    a. Serviced by Stericycle on Yale University contract. Pickups on a regular schedule.
    b. All biomedical waste containers and mounts provided by Stericycle.

Hazardous Waste

1. *Hazardous Waste*
    a. Examples: Epinephrine, Nitroglycerine, Warfarin, unused Formalin
    b. Management requirements
        i. Stored in blue trays provided by EHS
        ii. Stored in the designated Satellite Accumulation Area (SAA) until removed by EHS. SAA should be in a dirty utility room.
2. *Non-Hazardous State Regulated Waste*
    a. Examples: Fluorescein, Iodine Tincture
    b. Management requirements
        i. Stored in blue trays provided by EHS
        ii. Stored in the designated Satellite Accumulation Area (SAA) until removed by EHS. SAA should be in a dirty utility room.

Waste Collection and Storage Facilities

1. Locations shall be provided for waste collection and storage as identified during project planning
2. Locations for waste collection and storage shall meet local, state, and federal regulations
3. Waste collection and storage space for the following types of waste produced by the facility shall be provided and indicated in the design documents
    a. Municipal solid waste
    b. Biomedical waste
    c. Hazardous waste
4. Size of spaces provided for waste collection and storage shall be based on the following:
    a. Categories and projected volume of waste
    b. Methods for handling and disposing of waste
    c. Length of anticipated storage
5. Secured, locked space shall be provided for biomedical and hazardous waste