

COMPLIANCE CHECKLIST

IP17: Nuclear Medicine

The following checklist is intended to be used in the plan review applications for health care facilities submitted to the Massachusetts Department of Public Health. This checklist summarizes and references the applicable requirements from the Licensure Regulations and the 2014 Edition of the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities. Applicants must verify compliance of the plans submitted to the Department with all referenced requirements from the Licensure Regulations and FGI Guidelines when completing this Checklist. A separate Checklist must be completed for each nursing unit, hospital or clinic department, or clinical suite.

Other jurisdictions, regulations and codes may have additional requirements which are not included in this checklist, such as:

- NFPA 101 Life Safety Code (2000) and applicable related standards contained in the appendices of the Code
- State Building Code (780 CMR)
- Joint Commission on the Accreditation of Health Care Organizations
- CDC Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health Care Facilities
- USP 797
- Accessibility Guidelines of the Americans with Disabilities Act (ADA)
- Architectural Access Board Regulations (521 CMR)
- Local Authorities having jurisdiction.

Instructions:

1. All requirement lines must be completed according to the following instructions and included in the plan submissions for Self-Certification Process or Part II of the Abbreviated Review Process.
2. This checklist must be completed by the project architect or engineer based on the design actually reflected in the plans at the time of completion of the checklist.
3. Each requirement line (___) of this Checklist must be completed exclusively with one of the following symbols, unless otherwise directed in the checklist. If a functional space is not affected by a renovation project, the symbol "E" may be indicated on the requirement line (___) before the name of the functional space (associated requirements on indented lines below that name, or associated MEP requirements do not have to be completed in this case). If more than one functional space serves a given required function (e.g. patient room or exam room), that clarification should be provided in the Project Narrative, and the requirement lines are understood to only address the functional spaces that are involved in the project.

X = Requirement is met, for new space, for renovated space, or for existing direct support space for an expanded service.

= Check box under section titles or individual requirements lines for optional services or functions that are not included in the project area.

E = Requirement relative to an existing suite or area that has been *licensed* for its designated function, is *not affected* by the construction project and *does not pertain to a required direct support space* for the specific service affected by the project.

W = Waiver requested for specific section of the Regulations or FGI Guidelines, where hardship in meeting requirement can be demonstrated (a Physical Plant Waiver Form must be completed for each waiver request).

4. All room functions marked with "X" must be shown on the plans with the same name labels as in this checklist.
5. Mechanical, electrical & plumbing requirements are only partially mentioned in this checklist. The relevant section of the FGI Guidelines must be used for project compliance with all MEP requirements and for waiver references.
6. Oxygen, vacuum, medical air, and waste anesthesia gas disposal outlets (if required) are identified respectively by the abbreviations "OX", "VAC", "MA", & "WAGD".
7. Requirements referenced with "FI" result from formal interpretations from the FGI Interpretations Task Group.
8. The location requirements including asterisks (*) refer to the definitions of the Glossary in the beginning section of the FGI Guidelines.

Facility Name: _____

DoN Project Number: (if applicable) _____

Facility Address: _____

Satellite Name: (if applicable) _____

Building/Floor Location: _____

Satellite Address: (if applicable) _____

Submission Dates:

Project Description: _____

Initial Date:

Revision Date:

Architectural Requirements

Building Systems Requirements

2.2-3.6

NUCLEAR MEDICINE

2.2-3.6.1.2

Space & Equipment Within Each Nuclear Medicine Procedure Room:

- (1) ___ Nuclear medicine equipment
- (a) ___ Stretcher
- (b) ___ Exercise equipment (e.g., treadmill, bicycle)
- (c) ___ Staff work space
- (2) ___ Permits entry of stretchers & beds

2.2-3.6.2

SCINTIGRAPHY (GAMMA CAMERA) ROOM

check if not included in project

2.2-3.6.2.2

Space Requirements:

- ___ room sized & configured in compliance with manufacturer specifications
- ___ installation plans have been submitted to DPH Plan Review

Nurse Call System:

- ___ Emergency staff assistance station Table 2.1-2

2.2-3.6.2.3

- ___ handwashing station

2.2-3.6.3

POSITRON EMISSION TOMOGRAPHY (PET) SUITE

check if not included in project

2.2-3.6.3.1

(2)

Location & Layout:

- ___ PET suites designed & positioned in hospital or facility to restrict incidental exposure to ionizing radiation sources by persons not immediately involved in PET examination

2.2-3.6.3.2

(1)

(a)

- ___ PET Scanner room
- ___ sized to accommodate PET equipment & clearances in accordance with manufacturer specifications
- ___ equipment installation plans have been submitted to DPH Plan Review

Nurse Call System:

- ___ Emergency staff assistance station Table 2.1-2

2.2-3.6.3.3

- ___ Control room
- ___ full view of patient in the PET scanner

2.2-3.6.3.4

- ___ Patient uptake/cool-down room
- ___ shielded room
- ___ dedicated toilet to accommodate radioactive waste & handwashing station

Ventilation:

- ___ Min. 10 air changes per hour Table 7.1
- ___ Exhaust

2.2-3.6.3.5

- ___ Handwashing stations
- ___ locations of patient contact
- ___ locations where radiopharmaceutical materials are handled, prepared or disposed of

Architectural Requirements

Building Systems Requirements

Support Areas for PET Suite:

- 2.2-3.6.3.6 pre-procedure & recovery area or room
 accommodates at least 2 stretchers
- 2.2-3.5.3.1 (2) immediately accessible* to procedure rooms
 separate from corridors
- (3) arranged to permit visual observation by staff before & after procedure
- 2.2-3.5.3.2 Space Requirements:
 - patient bays*
 - check if not included in project
 - min. clear floor area 60 sf
 - 4'-0" between sides of patient beds/stretchers
 - 3'-0" between sides of patient beds/ stretchers & adjacent walls or partitions
 - patient cubicles*
 - check if not included in project
 - min. clear floor area 80 sf
 - min. clearance 3'-0" between sides & foot of lounge chairs/stretchers & adjacent walls or partitions
 - single-bed rooms
 - check if not included in project
 - min. clear floor area 100 sf
 - min. clearance 3'-0" between sides & foot of lounge chairs/stretchers & adjacent walls or partitions
 - provisions such as cubicle curtains used for patient privacy

Nurse Call System:

- Patient station
- Emergency staff assistance station

Table 2.1-2

- 2.1-2.6.5 Handwashing Stations:
- 2.1-7.2.2.8(1) handwashing stations in patient care areas located to be visible & unobstructed
- 2.1-2.6.5.3 handw. stations that serve multiple patient care stations
 - check if not included in project:
 - (1) at least one handwashing station for every 4 patient care stations or fewer & for each major fraction thereof
 - (2) evenly distributed
 - provide uniform distance from two patient care stations farthest from handwashing station

Architectural Requirements

Building Systems Requirements

- 2.2-3.6.3.6 (2) computer equipment room
- (3) contaminated soiled holding area

2.2-3.6.4 **SINGLE-PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) SUITE**

check if not included in project

- 2.2-3.6.4.2 SPECT scanner room
 - Space Requirements:
 - sized to accommodate SPECT equipment & clearances in accordance with manufacturer specifications
 - equipment installation plans have been submitted to DPH Plan Review

- Nurse Call System:
 - Emergency staff assistance station Table 2.1-2

- 2.2-3.6.4.3 Control room
 - full view of patient in the SPECT scanner

- 2.2-3.6.4.4 Computer equipment

- 2.2-3.6.4.5 Handwashing stations
 - locations of patient contact
 - locations where radiopharmaceutical materials are handled, prepared & disposed of

2.2-3.6.6 **SUPPORT AREAS FOR NUCLEAR MEDICINE SERVICES**

- 2.2-3.6.6.1 Control desk & reception area
- 2.2-3.6.6.3 Documentation area
- 2.2-3.6.6.4 Consultation area
 - (1) area for consultation with patients or referring clinicians, including remote consultation with referring clinicians
- 2.2-3.6.6.6 Dose administration area
 - (1) located near preparation area
 - (2) visual privacy from other areas
 - handwashing station
- 2.2-3.6.6.7 Pre-procedure patient care area (may be combined with dose administration area)
 - accommodates patients on stretchers or beds
 - out of traffic
 - under control of staff

- 2.2-3.6.6.10 (1) Soiled workroom
 - handwashing station
 - clinical sink (or equivalent flushing-rim fixtures)

or

- (2) Soiled holding room

- Ventilation:
 - Min. 10 air changes per hour Table 7.1
 - Exhaust
 - Negative pressure
- Nurse Call System:
 - Duty station
- Ventilation:
 - Min. 10 air changes per hour Table 7.1
 - Exhaust
 - Negative pressure

Architectural Requirements

Building Systems Requirements

2.2-3.6.6.11

- (1) Clean linen storage area
 - handwashing station
- (2) Film storage
 - inactive image storage
 - under administrative control
 - properly secured to protect images from loss or damage

2.2-3.6.6.12

- Environmental services room
 - located in nuclear medicine suite

2.1-2.6.12.1

- (1) serves one or more than one nursing unit on a floor
- (2) readily accessible* to unit it serves

2.1-2.6.12.2

- (1) service sink or floor-mounted mop sink
- (2) provisions for storage of supplies & housekeeping equipment
- (3) handwashing station or hand sanitation station

Ventilation:

- Min. 10 air changes per hour Table 7.1
- Exhaust

2.2-3.6.6.14

- Computer room
 - check if not included in project

2.2-3.6.6.15

- Radiopharmacy
 - check if not included in project (only if radiopharmaceutical preparation is performed off-site)

- (1) appropriate shielding
- (a) space requirements
 - space for dose calibration, quality assurance & record-keeping activities
- (b) space for storage of radionuclides, chemicals for preparation, dose calibrators & records
- (2) floors & walls constructed of easily decontaminated materials
- handwashing station

Ventilation:

- Min. 6 air changes per hour Table 7.1
- Exhaust
- Negative pressure
- Exhaust hoods 2.2-3.6.6.15(3)

2.2-3.6.6.16

- Hot lab (Scintigraphy, PET & SPECT)
 - check if not included in project
 - securable area or room
- (2) shielded
- (3) source storage area
- dose storage area
- storage area for syringe shields
- handwashing station

Ventilation:

- Min. 6 air changes per hour Table 7.1
- Exhaust
- Negative pressure

2.2-3.6.7

SUPPORT AREAS FOR STAFF

2.2-3.6.7.1

- Staff toilet
 - readily accessible* to nuclear medicine department

Ventilation:

- Min. 10 air changes per hour Table 7.1
- Exhaust

Architectural Requirements

Building Systems Requirements

2.2-3.6.8 **SUPPORT AREAS FOR PATIENTS**

- 2.2-3.6.8.1 (1) Patient waiting area
 - screened & separated from unrelated traffic
 - under staff control
- (3) outpatient waiting & inpatient holding areas separated & screened to provide visual & acoustic privacy between them
- 2.2-3.6.8.2 (1) Patient changing rooms
 - immediately accessible* to procedure rooms
- (2) seat or bench, mirror & provisions for hanging clothing & securing valuables
- 2.2-3.6.8.3 Patient toilet rooms
 - reserved for nuclear medicine patients
 - immediately accessible* to waiting & procedure rooms

- Ventilation:
- Min. 10 air changes per hour Table 7.1
 - Exhaust

2.2-3.6.9 **SPECIAL DESIGN ELEMENTS FOR NUCLEAR MEDICINE AREAS**

- 2.2-3.6.9.1 Architectural Details:
- (1) ceiling-mounted equipment properly designed rigid support structures located above finished ceiling
 - (2) radiation shielding
 - radiation shielding plans have been submitted to the DPH Radiation Control Program

Architectural Details & MEP Requirements

2.1-7.2.2 ARCHITECTURAL DETAILS

- 2.1-7.2.2.1 NFPA 101 Aisles, corridors & ramps required for exit access in a hospital not less than 8'-0" in clear & unobstructed width

or

 Code Review Sheet establishing compliance with NFPA 101 has been submitted
- Aisles, corridors & ramps in adjunct areas not intended for the housing, treatment, or use of inpatients not less than 44" in clear width
- 2.1-7.2.2.2 CEILING HEIGHT:
 - (1) Min. ceiling height 7'-6" in corridors & normally unoccupied spaces
 - (4) Min. height 7'-6" above floor of suspended tracks, rails & pipes located in traffic path for patients in beds and/or on stretchers
 - Min. ceiling height 7'-10" in other areas

2.1-7.2.2.3 DOORS & DOOR HARDWARE:

- (1) (a) Doors between corridors, rooms, or spaces subject to occupancy swing type or sliding doors
 - Sliding doors
 - check if not included in project
 - manual or automatic sliding doors comply with NFPA 101
 - code review sheet attached
 - no floor tracks
- (2) (a) Min. 45.5" clear door width for diagnostic/treatment areas
 - Min. 83.5" clear door height for diagnostic/treatment areas
- (b) Swinging doors for personnel use in addition to sliding doors
 - check if not included in project
 - min. clear width 34.5"
- (3) Doors do not swing into corridors (except doors to non-occupiable spaces & doors with emergency breakaway hardware)

- (4) _____ Lever hardware
- (b) _____ Doors for patient toilet facilities
- (5) _____
- (a) _____ 2 doors separated by horizontal distance equal to one-half length of max. diagonal room dimension
- or**
- _____ door that swings outward
- or**
- _____ door equipped with emergency rescue hardware
- or**
- (b) _____ sliding door
- _____ toilet room door opening in public area or corridor maintains visual privacy
- 2.1-7.2.2.7 **GLAZING MATERIALS:**
- (4) _____ Glazing within 18" of floor
- check if not included in project
- _____ safety glass, wire glass or plastic break-resistant material
- 2.1-7.2.2.8 **HANDWASHING STATIONS:**
- (1) _____ Handwashing stations in patient care areas located to be visible & unobstructed
- (3) _____ Anchoring suitable for vertical or horizontal force of 250 lbs.
- (4) _____ Handwashing Station Countertops:
- check if not included in project
- (a) _____ porcelain, stainless steel or solid surface materials
- (b) _____ plastic laminate countertops
- check if not included in project
- _____ substrate marine-grade plywood (or equivalent) with impervious seal
- (5) _____ Designed to prevent storage beneath sink
- (6) _____ provisions for drying hands
- (a) _____ hand-drying device does not require hands to contact dispenser
- (d) _____ directly accessible* to sinks
- (7) _____ Liquid or foam soap dispensers
- 2.1-7.2.2.9 **GRAB BARS:**
- (2) _____ Grab bars anchored to sustain concentrated load of 250 lbs.
- 2.1-7.2.2.10 **HANDRAILS:**
- (1) _____ Handrails installed on both sides of patient use corridors

- (3) _____ Rail ends return to wall or floor
- (4) _____ Smooth non-textured surface free of rough edges
- (5) _____ Eased edges & corners
- (6) _____ Finishes cleanable
- 2.1-7.2.2.11 **RADIATION PROTECTION:**
- check if no radiation emitting equipment is included in project
- _____ Protection for Gamma-ray installations are shown in the plans
- _____ Documentation for radiation protection has been submitted separately to the DPH Radiation Control Program
- 2.1-7.2.2.12 **NOISE CONTROL:**
- (2) _____ Partitions, floors & ceiling construction in patient areas conform to Table 1.2-6
- 2.1-7.2.3 SURFACES**
- 2.1-7.2.3.1 **FLOORING & WALL BASES:**
- (1) _____ Selected flooring surfaces cleanable & wear-resistant for location
- (2) _____ Smooth transitions between different flooring materials
- (3) _____ Flooring surfaces, including those on stairways, stable, firm & slip-resistant
- (b) _____ Carpet
- check if not included in project
- _____ provides stable & firm surface
- (4) _____ Floors & wall bases of soiled workrooms, toilet rooms & other wet cleaned areas are not physically affected by cleaning solutions
- 2.1-7.2.3.2 **WALLS & WALL PROTECTION:**
- (1) _____ Washable wall finishes
- (a) _____ Wall finishes near plumbing fixtures smooth, scrubbable & water-resistant
- (b) _____
- (2) _____ Monolithic wall surfaces in areas routinely subjected to wet spray or splatter
- (5) _____ No sharp, protruding corners
- (6) _____ Wall protection devices & corner guards durable & scrubbable
- 2.1-7.2.3.3 **CEILINGS:**
- (1) _____ Ceilings in areas occupied by patients, in clean rooms & soiled rooms:
- (a) _____ cleanable with routine housekeeping equipment

- (b) acoustic & lay-in ceilings
 - check if not included in project
 - do not create ledges or crevices

4/7
4/7.1

- Space Ventilation:
- Spaces ventilated per Table 7.1
 - Air movement from clean areas to less clean areas
 - Min. number of total air changes indicated either supplied for positive pressure rooms or exhausted for negative pressure rooms
 - Recirculating room HVAC units
 - check if not included in project
 - each unit serves only single space
 - min. MERV 6 filter for airflow downstream of cooling coils

2.1-8.2 HEATING, VENTILATION, & AIR-CONDITIONING (HVAC) SYSTEMS

- 4/6.3.1 Outdoor Air Intakes:
- 4/6.3.1.1 Located min. 25 feet from cooling towers & all exhaust & vent discharges
 Bottom of air intake is at least 6'-0" above grade
- 4/6.3.1.2 Roof Mounted Air Intakes:
 check if not included in project
 bottom min. 3'-0" above roof level

2.1-8.2.1.1 (5)

- Acoustic Considerations:
- Equipment location or acoustic provisions limit noise associated with outdoor mechanical equipment to 65 dBA at building façade

- 4/6.3.2 Exhaust Discharges for Contaminated Exhaust Air:
 check if not included in project
 Ductwork under negative pressure (except in mechanical room)
 Discharge in vertical direction at least 10'-0" above roof level
 Located not less than 10'-0" horizontally from air intakes & operable windows/doors

2.1-8.2.1.2 (1)

- Ventilation & Space-Conditioning:
- All rooms & areas used for patient care have provisions for ventilation
 - Mechanical ventilation provided for all rooms & areas in facility in accordance with Table 7.1 of Part 4

- 4/6.4 Filtration:
 Filter banks conform to Table 6.4
- 4/6.4.1 Filter Bank #1 placed upstream of heating & cooling coils
- 4/6.4.2 Filter Bank No. 2 installed downstream of cooling coils & supply fan

2.1-8.2.3.2 (1)

- Exhaust Hoods for Radiopharmacy:
 check if not included in project
 Makeup air provided around exhaust hoods to maintain required airflow direction & exhaust velocity
 Makeup systems for hoods arranged to minimize "short circuiting" of air & to avoid reduction in air velocity at point of contaminant capture

- 4/6.7 Air Distribution Systems:
- 4/6.7.1 Ducted return or exhaust systems in spaces listed in Table 7.1 with required pressure relationships
 Ducted return or exhaust systems in inpatient care areas

(2)
(c)

- Hood min. face velocity of 90-110 ft/minute
- Pressure-independent air-modulating devices
- Alarms to alert staff of fan shutdown or loss of airflow
- Filters 99.97% efficiency in exhaust stream
- Permits safe removal, disposal & replacement of contaminated filters
- Filters located within 10'-0" of hood
- Stainless steel fume hoods

- 4/6.7.3 Smoke & Fire barriers:
 HVAC zones coordinated with compartmentation to minimize ductwork penetrations of fire & smoke barriers
- 4/6.8 Energy Recovery Systems:
 4/6.8.2 Exhaust systems serving potentially contaminated rooms are not used for energy recovery

- 4/6.9 Duct Lining:
 No duct lining in ductwork located downstream of Filter Bank #2

- 2.1-8.3 **ELECTRICAL SYSTEMS**
- 2.1-8.3.2 **ELECTRICAL DISTRIBUTION & TRANSMISSION**
- 2.1-8.3.2.1 Switchboards Locations:
 - (1)
 - (a) Located in areas separate from piping & plumbing equipment
 - (b) Not located in rooms they support
 - Accessible to authorized persons only
 - (c) Located in dry, ventilated space free of corrosive gases or flammable material
 - 2.1-8.3.2.2 Panelboards:
 - (1) Panelboards serving life safety branch emergency circuits only serve same floor, floor above & floor below
 - (2) Panelboards serving critical branch emergency circuits only serve same floor
 - (3) New panelboards not located in exit enclosures
- 2.1-8.3.3.1 **EMERGENCY ELECTRICAL SERVICE**
 - (1) Emergency power per NFPA 99, NFPA 101 & NFPA 110
- 2.1-8.3.5 **ELECTRICAL EQUIPMENT**
- 2.1-8.3.5.2 Required handw. station or scrub sink tied to building electrical service
 - check if not included in project
 - connected to essential electrical system
- 2.1-8.3.6 **ELECTRICAL RECEPTACLES**
- 2.1-8.3.6.2 Receptacles in Patient Care Areas:
 - receptacles provided according to Table 2.1-1
- 2.1-8.3.7 **CALL SYSTEMS**
 - Nurse call equipment legend includes patient stations, bath stations, staff emergency stations & code call stations
- 2.1-8.3.7.1
 - (1) Nurse call system locations provided as required in Table 2.1-2
 - (2) Nurse call systems report to attended location with electronically supervised visual & audible signals
 - (4) Call systems meet requirements of UL 1069 *Standard for Hospital Signaling & Nurse Call Equipment*
 - (5) Wireless system
 - check if not included in project
 - meet requirements of UL 1069

- 2.1-8.3.7.3 Bath Stations:
 - provided at each patient toilet
 - alarm turned off only at bath station where it was initiated
 - (3) located to side of toilets within 12" of front of toilet bowl & 3'-0" to 4'-0" above floor
- 2.1-8.3.7.4 Staff emergency stations for summoning local staff assistance for non-life-threatening situations at each patient care location
- 2.1-8.3.7.5 Code call station equipped with continuous audible or visual signal at point of origin
- 2.1-8.4.2 **PLUMBING & OTHER PIPING SYSTEMS**
- 2.1-8.4.2.5 Heated Potable Water Distribution Systems:
 - (2) systems serving patient care areas are under constant recirculation
 - non-recirculated fixture branch piping does not exceed 25'-0" in length
 - no dead-end piping
 - water-heating system has supply capacity at minimum temperatures & amounts indicated in Table 2.1-3
- (3) handwashing stations supplied as required above
- (4) handwashing stations supplied at constant temperature between 70°F & 80°F using single-pipe supply
- or**
- (5) handwashing stations supplied at constant temperature between 70°F & 80°F using single-pipe supply
- 2.1-8.4.2.6 Drainage Systems:
 - (1) drainage piping above ceiling of, or exposed in electric closets
 - check if not included in project
 - special provisions to protect space below from leakage & condensation
- 2.1-8.4.3 **PLUMBING FIXTURES**
- 2.1-8.4.3.1
 - (1) Materials material used for plumbing fixtures non-absorptive & acid resistant
- 2.1-8.4.3.2 Handwashing Station Sinks:
 - (1) basins reduce risk of splashing to areas where direct patient care is provided, sterile procedures are performed & medications are prepared
 - (2) basin min. 144 square inches
 - min. dimension 9 inches

- (3) made of porcelain, stainless steel, or solid-surface materials
- (5) water discharge point of faucets at least 10 inches above bottom of basin
- (7) anchoring for sinks withstands min. vertical or horizontal force of 250 lbs.
- (8) fittings operated without using hands for sinks used by medical & nursing staff, patients, public & food handlers

- (a) blade handles or single lever
 - min. 4 inches long
 - provide clearance required for operation
- or
- (b) sensor-regulated water fixtures
 - meet user need for temperature & length of time water flows
 - designed to function at all times & during loss of normal power

2.1-8.4.3.5

Clinical Sinks:

- check if not included in project
- (1) trimmed with valves that can be operated without hands
- (2) handles min. 6 inches long
- integral trap wherein upper portion of water trap provides visible seal

2.1-8.4.4

MEDICAL GAS & VACUUM SYSTEMS

- Station outlets provided as indicated in Table 2.1-4

2.1-8.4.4.2
(2)

- Vacuum discharge at least 25'-0" from all outside air intakes, doors & operable windows

2.1-8.6.2

ELECTRONIC SURVEILLANCE SYSTEMS

- check if not included in project

2.1-8.6.2.1

- Devices in patient areas mounted in unobtrusive & tamper-resistant enclosures

2.1-8.6.2.2

- Monitoring devices not readily observable by general public or patients

2.1-8.6.2.3

- Receive power from emergency electrical system