

Preparing For & Implementing Successful Project Inspections
 HOW TO GUIDE FOR HOSPITAL PROJECT MANAGERS, DESIGNERS, AND CONTRACTORS

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**NCHEA
 DHSR INSPECTION HANDBOOK**

- How-to Guide for YOU!
 - Prep during construction
 - Pre-DHSR inspections
 - Inspection Day
 - After the Inspection
- Inspection and Testing Checklists
 - Architecture and Engineering
 - Built from community input
 - Decades of collected experience

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**NCHEA
 DHSR INSPECTION CHECKLIST**

DHSR Pre-Inspection Check List

Item	Pass/Fail	Comments
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**Goalposts
EXPECTATIONS FOR INSPECTION DAY**

- 100% complete, all systems go!
- Project constructed in accordance with approved plans
- Project team checked their own work
- No patient care or life safety issues
- Local Approved
- Got your books in order
- Players on the field with all their gear

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**Never too Early to Start your pre-finals!
START ON THE RIGHT FOOT**

- Have an early conversation to be sure
 - Everyone agrees on which code the project will be reviewed by
 - Any exceptions to FGI anticipated
 - Any controversial or challenging existing conditions
 - Number of inspections anticipated
 - Timeline of occupancy

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**Never too Early to Start your pre-Finals!
TIMELY INSPECTIONS ALONG THE WAY SAVE THE DAY**

- Build a more comprehensive schedule
- Review the Plan Review comments
- Document/review concealed conditions and challenging issues
- Coordinate testing and inspections with key players
- Collect required installation instructions as you go
- Identify and mitigate high-risk project aspects
- Address existing condition problems

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**Purposeful Pre-Planning PAYS!
EXAMPLE FIRE & FIRE/SMOKE
DAMPERS, AHU RESPONSE**

- Review installation requirements before installation
- Review sequence of operation before programming
- Schedule inspection/testing as installation is completed
- Schedule controls testing as programming is completed
- System is fully complete prior to pre-final testing
- Coordinate pre-final testing with all parties present



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**Pre-Finals Inspection and Testing
RIGHT TEAM - RIGHT TIME**

- Schedule just in time when ready on a system-by-system basis
- Coordinate testing with key players present, designer, GC, and contractor
- Review and triage corrections from inspections
- Plan for issues that may not be able to be addressed before inspection day
- Verify inspection and testing comments are corrected
- Remember the plan review comments

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**Project Completion Approaches
WHEN TO SCHEDULE FINAL INSPECTION**

- Two weeks notice typical for NC State AHJ
- Will you be ready in two weeks? Plan time to fix inevitable problems
- Don't underestimate time required for final inspections & resolution of issues
- Will you have your closeout documentation ready in time?
- Will the local AHJ complete their inspection AND approvals in time?
- Wrapping up construction the same week as AHJ final is risky business!

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**Closeout Document Prep and Review
SOLID GOLD DOCUMENT PREPARATION**

- Know what is required for your project, check the plan review letter
- Start early, encourage completion of documentation as work is finished
- Carefully check documentation with the design and GC team
- Look for comments in TAB, medgas reports, isolation reports, etc.
- Crosscheck testing areas noted against project areas
- Crosscheck install instructions and finishes ratings against scope
- Print and include documentation of any concealed construction
- Issues in documents that can't be resolved have a defensible plan

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**Almost Ready . . .
WHO TO BRING TO THE DANCE**

- | | |
|--|---|
| • Hospital PM and technicians | • Nurse call programmer |
| • Clinical leaders (<i>as needed</i>) | • Medical gas lead with supporting techs |
| • Knowledgeable design team members | • Fire sprinkler lead with supporting techs |
| • GC PM and Superintendent | • Plumbing lead |
| • Electrician lead with supporting techs | • Locking systems techs and programmer |
| • Mechanical lead with supporting techs | • Imaging equipment reps or contacts |
| • Fire alarm lead and programmer | |

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**Almost Ready . . .
WHAT TO BRING TO THE DANCE**

- | | |
|--|--|
| • Keys / cards for project areas plus | • Fire caulk and wall labels/stencils |
| • Plotted color life safety plan | • Programming computers/software for BAS, Fire Alarm, Nurse Call, etc. |
| • Current design document set | • Test smoke and pole |
| • AHJ plan review letter/response | • Duct detector keys/magnet |
| • Photos/documentation of concealed conditions | • Medical gas bleed valves and spare labels |
| • Complete closeout document sets (x3) | • Label maker |
| • Ladders of various heights | • Radios for site communication |
| | • Locking systems techs and programmer |

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Final Preparations Before Arrival
HOW TO MAKE IT LOOK EASY ON YOUR BIG DAY

- Arrive 1-2 Hours Prior To State
- Confirm who/what lists are present
- Brief clinical staff
- Place fire alarm in test/bypass
- Remove selected receptacles & faceplates
- Prep electrical panel cover removal
- Remove strategic ceiling tiles
- Prep imaging for EPO test
- Open access doors
- Stage techs at FACP with radio communication
- Stage techs at BAS with radio communication
- Stage ladders strategically
- Set out closeout documents and plans

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The Big Day is Finally Here
DO'S AND DON'T'S FOR SAVVY PROJECT TEAMS

- Always keep patient safety at the top of your mind during the inspection
- Summarize the scope of work and systems and your readiness to demonstrate
- Demonstrate the scope and systems as you inspected and tested them
- Take your own notes as you go
- Don't be afraid to ask for clarification on comments, but steer clear of pitfalls
- Note aspects that were addressed and resolved during the construction phase
- Correct deficiencies as you go where possible
- Before you leave the site, document any corrections made during or immediately following the inspection
- Follow up after the inspection with any clarifications or code discussions

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Ladies & Gents, the State has Left the Building
WHAT TO DO AND EXPECT NEXT

- Review and confirm any remaining items to complete
- While the team is still mobilized, fix remaining items fast!
- Inspect corrections, be 100% sure they are fixed
- Provide documentation back to State of the remaining corrections
- Confirm re-inspection or documentation
- Final communication from State will be a requirements met letter

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System Checklists
 HOW TO GUIDE FOR HOSPITAL PROJECT MANAGERS, DESIGNERS, AND CONTRACTORS

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Architectural Systems
FOCAL POINTS & COMMON MISSES

- Rated wall/floor/ceiling installation, labeling, and protection
- Egress path requirements
- Space layout and sizing
- Smoke compartment and suite requirements
- Door requirements for corridors and rated walls
- Locking and latching systems
- Handwashing station locations
- Behavioral anti-ligature and tamper resistance

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Mechanical Systems
FOCAL POINTS & COMMON MISSES

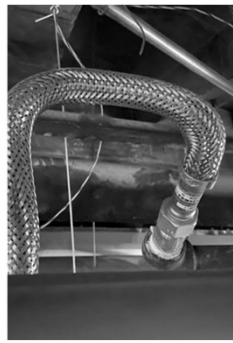
- Fire and fire/smoke damper installation and testing
- TAB report review for pressure-volume requirements
- Areas requiring exhaust are equipped as such
- Outside air intake location and separation
- AHU filtration
- Power supplies for HVAC systems
- Smoke control response sequences
- Hood ventilation systems

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Fire Protection Systems FOCAL POINTS & COMMON MISSES

- Location and coverage area for sprinkler heads
- Fire alarm interface testing of flow and tamper switches
- Valve labeling
- Fire pump location and performance testing
- Dry pipe, kitchen hood, pre-action system test
- Piping support above ceiling
- Flexible sprinkler piping bend radius requirements



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Plumbing Systems FOCAL POINTS & COMMON MISSES

- Lavatory fixture and bowl requirements
- Domestic hot water recirculation requirements
- Water and waste piping overhead critical areas
- Review of legionella control plans
- Lavatory hot water delivery time and temperature
- Backflow preventer requirements



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Medical Gas Systems FOCAL POINTS & COMMON MISSES

- Gas outlet/inlet types and counts by room
- Gas piping supports, labeling, separation
- Area alarm and master alarm testing
- Source system location requirements
- Piping in booms and headwalls
- Valve labeling, location, and security
- Gas bottle storage
- Bulk tank location requirements




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**Electrical Power Systems
FOCAL POINTS & COMMON MISSES**

- Raceway type and joining methods
- Raceway supports
- Correct branch power for project loads
- ATS and generator testing
- Labeling and directories
- Grounding and bonding
- Boom, headwall, and column wiring
- System testing documentation

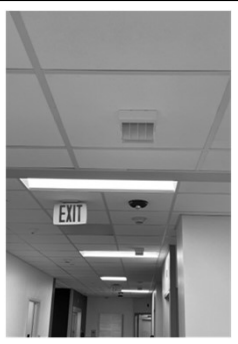


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**Lighting Systems
FOCAL POINTS & COMMON MISSES**

- Egress lighting from corridor to exit discharge
- Critical branch task lighting locations
- Fixture supports above ceiling
- Clinical lighting circuiting and grounding
- Patient room lighting for bed/reading/clinical lights
- Separation of essential branches and normal




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**Nurse Call Systems
FOCAL POINTS & COMMON MISSES**

- Right device types at locations per FGI/99
- System programming and addressing
- Placement of dome and zone lights
- Behavioral device installations
- Code call annunciation
- Critical power for head end controls
- Bath/shower pull cord placement



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**Fire Alarm Systems
FOCAL POINTS & COMMON MISSES**

- Area detection placement and coverage
- Audible and visual alarm placement and coverage
- Device addressing
- Smoke control, AHU, locks, damper, etc. programming
- Coordination across vintages and manufacturers
- NFPA 72 Record of Completion documentation



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Questions & Comments

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