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# Planning, Design, and Construction Challenges

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# Agenda

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- Introduction to PDC
- Main Phases of Construction
- Key Challenges
- Opportunity for Improvement

# Construction in Healthcare
# The Basics

**Construction is necessary**

**Construction is continuous**

**Disconnects between departments are abundant**

**Challenges drive opportunities**

**Opportunity adds significant value**

# Construction in Healthcare Trends

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- Demographic changes
- Regulatory changes
- Advances in equipment and technology
- Financial impact (services provide, payment)
- Length of stay changes
- Patient flow efficiencies (minimize steps for nursing)
- Department/service adjacencies

# Construction in Healthcare Statistics

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**2,670**

healthcare projects are tracked each year[1]

**$40-$50**

billion annual spend[1]

2024 Spend

**$66 Billion**

due to rising costs of supply chain and labor[2]

*1. Definitivehc.com*

*2. https://fred.stlouisfed.org*

# Construction in Healthcare Statistics

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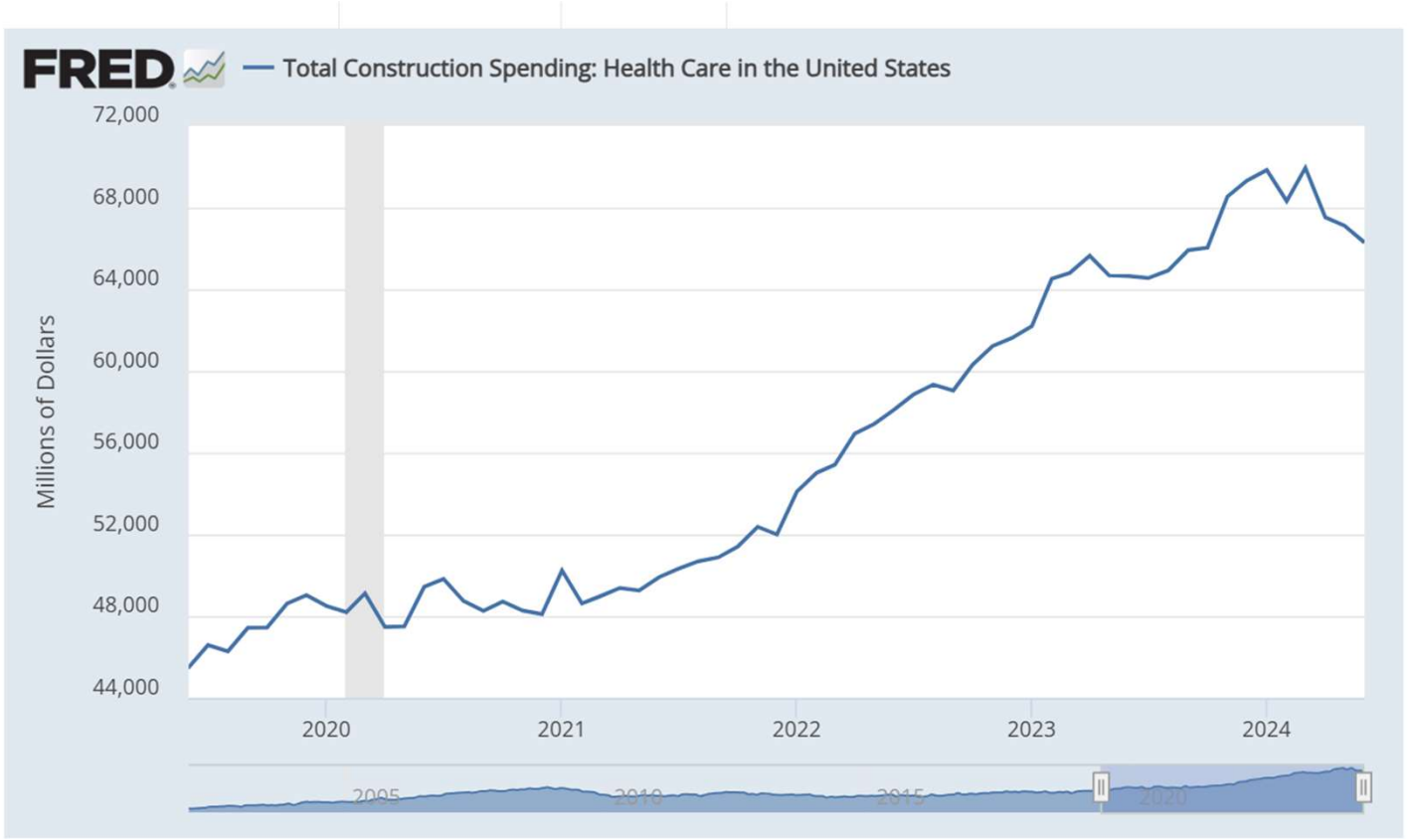


*https://fred.stlouisfed.org*

# Construction in Healthcare Statistics

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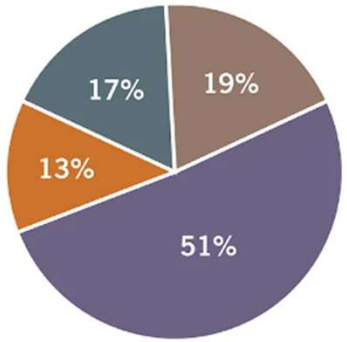
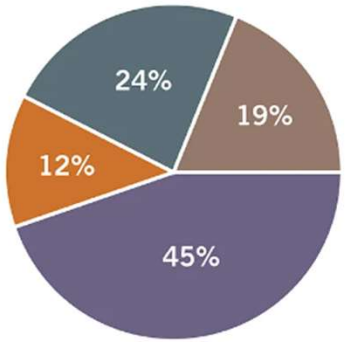
Percentage of projects that have experienced unexpected cost increases in the last three years due to supply chain delays, cost increases and labor shortages*




| | |
|---|---|
| 0-25% | 13% |
| 26-50% | 17% |
| 51-75% | 19% |
| 76-100% | 51% |

Percentage of projects that have experienced unexpected project delays in the last three years due to supply chain delays, cost increases and labor shortages*




| | |
|---|---|
| 0-25% | 12% |
| 26-50% | 24% |
| 51-75% | 19% |
| 76-100% | 45% |

*ASHE/HFM 2024 Healthcare Construction Survey*

# Construction in Healthcare
# State of the Environment

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HCOs are eager to start construction

Unforeseen impacts are creating challenges

Considerations to put projects on hold—not ideal

*ASHE/HFM 2024 Healthcare Construction Survey*

# Construction in Healthcare
# State of the Environment

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## Significant increase in cost per sq. ft.

Current response:

**65%** reduce scope

**56%** value engineering

Necessary

**Get it right the first time!**

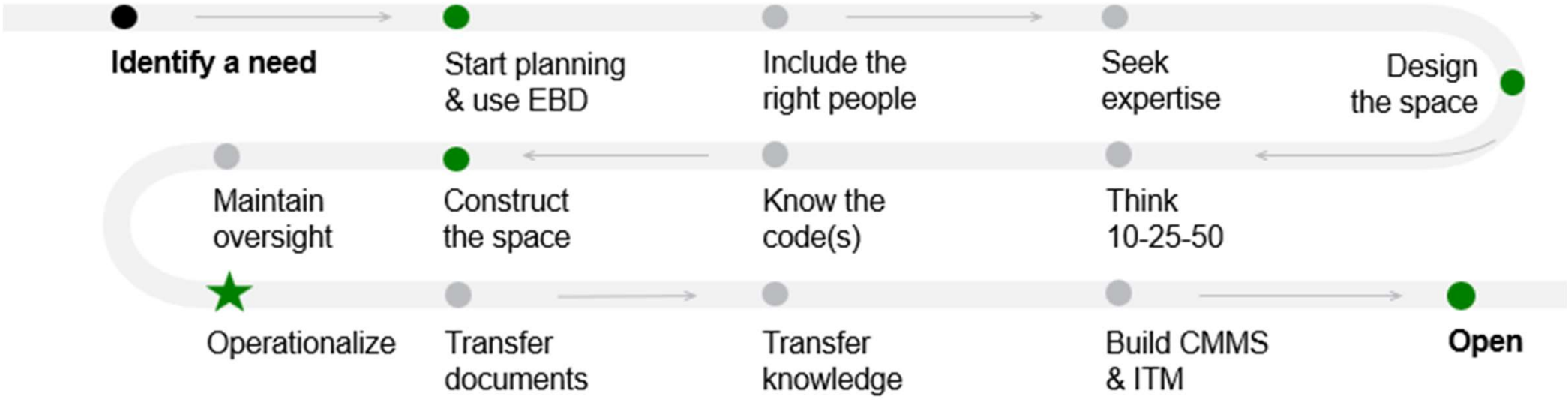
**30-45%** of construction work requires re-work

*ASHE/HFM 2024 Healthcare Construction Survey*

# Construction Roadmap
# Milestones & Challenges

Key milestones
Key challenges

Organizations oftentimes work with many different contractors, trades, vendors, and suppliers to fulfill their construction and operational needs. That leads to disjointed efforts and increased cost.



# Project Team

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## Construction

- PDC Director
- Architect
- Designer
- Project manager
- General contractor
- Contractors
- Engineering
- Trades
- Manufacturer representative

## Operations

- Facility management
- Hospital administration
- Procurement & supply chain
- Nursing/ clinical departments
- Infection Prevention
- Safety and accreditation
- Biomedical engineering
- IT
- Housekeeping

# Consolidated Phases of Construction

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## 1 Planning & design

- Needs assessment
- Space identification
- SD-DD-CD
- Code & risk
- Furnishing and equipment
- Bid work

## 2 Pre-construction

- Checklists
- Team & meetings
- PCRA, ICRA, ILSM,
- Timelines
- Prepare space
- Train contractors & staff
- NFPA 241

## 3 Construction

- Monitor compliance
- Manage impacts
- Tag assets
- Build inventory
- Collect documents
- Establish ITM
- Train staff

## 4 Post-occupancy

- Ensure function to design
- Identify faulty equipment
- Maximize warranties
- Trend outcomes
- Maintain compliance

**Let's bridge the GAP between construction and operations!**

**That's a lot of VALUE!**

# 1 Planning and Design Phase

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**Challenges:**

- Type of Space and Compliance
- Operations Perspective
- Expertise
- Design Features
  - Lighting
  - Ventilation
  - Finishings
  - Storage
- Bidding Process

**Considerations:**

- Who is assesses the drawings?
- Who represents Operations?
- Does the organization have HCO standards?
- How is the job going out to bid?

# 2 Pre-Construction Phase

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**Challenges:**

- Location
- Risk Assessments
- Safety Equipment
- Staff Involvement

**Considerations:**

- Where is the construction located?
- Have the required risk assessments been completed?
- Do you have the right safety equipment for the job?
- Are contractors trained on how to maintain safety of the building
- Do staff from adjacent spaces know what to expect??

# 3 Construction Phase

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**Challenges:**

- Build to Design
- Maintaining Rated Barriers
- Tracking Equipment Installations
- Commissioning
- Compliance Monitoring

**Considerations:**

- Are you meeting state and CMS requirements?
- What fire rated systems are used?
- Who manages equipment installations?
- Who determines maintenance strategies
- Who captures warranty information?

# 4 Post-Occupancy Phase

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**Challenges:**

- Final Punchlist
- Safety and Readiness for Patients
- Staff Efficiencies
- Maintenance Efficiencies
- Post Occupancy Adjustments

**Considerations:**

- What is missing from the punchlist?
- Is the space ready for the first patient?
- Is staff trained on workflows, building controls, etc.?
- Is all equipment entered in the CMMS program
- Has any space been repurposed, and if so, is it still compliant?

# Key Opportunities for Improvement

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## Include Operations

- Early
- Often

## Provide Resources

- Time
- Subject Matter Experts
- Representatives

## Improve Transition

- Documents
- Inventories
- Knowledge
- Training

## Build it Right the 1st Time

- Eliminate Rework
- Reduce Cost
- Be Efficient

# Another Related Challenge
# EM & Construction Design

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Was EM incorporated into the Planning and Design phase for:

Cyber Attacks

Hurricanes

Pandemics

Tornados

Civil Unrest

Hint: Has the organization's Hazard Vulnerability Assessment been considered?

# EM & Construction Hurricanes

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- Challenges
  - Structural damage from high winds and flood waters
  - Loss of electrical power—including onsite back up generators
  - Loss of potable water
  - Internet and cell phone outages
  - Staff access
- Considerations
  - Infrastructure reinforcement
  - Location of generators, switch gear, substations
  - Identify supplemental water sources (tanks/cisterns, & wells)
  - Establish alternative and multiple communication channels
  - Place emergency exits above the 500-year flood line (where are your flood gates?)

https://toolkit.climate.gov/sites/default/files/Hazard_Hurricanes_3.0_0.pdf

# EM & Construction Call to Action

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- Use regional climate models in design
- Hire consultants who are familiar with climate-resilient design/construction
- Place critical equipment above the level of projected flood risk (including EMR servers and equipment)
- Place redundant IT systems off-site
- Design to energy-efficient net zero measures
- Eliminate once-through-use for process equipment (water efficiency)
- Maximize green space on ground level and facility roofs

# Pulling it All Together Discussion

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- How do we get the operations teams more involved?
  - Do they have time?
  - Do they have the resources?
  - Do they understand the construction process and its impacts?

# Pulling it All Together Discussion

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- How do we get Leadership to understand and support operations during construction projects?
- How do we start to capture our true cost?
  - Limited work with intent of using Operations Budget later
  - Rework

# Pulling it All Together

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Let’s move from our current response to the necessary response!

**Significant increase in cost per sq. ft.**

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Necessary

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*ASHE/HFM 2024 Healthcare Construction Survey*

# Thank You

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