Certification Program of The Center for Health Design
Detailed Content Outline

I. EVIDENCE-BASED DESIGN FOR HEALTHCARE

A. Evidence-Based Design (EBD) Process for Healthcare

1. Apply the definition of evidence-based design
2. Explain how evidence-based design can benefit
   a. patients
   b. families
   c. community
   d. staff
3. Explain how evidence-based design can influence
   a. financial outcomes
   b. operational metrics
   c. clinical and safety outcomes
   d. satisfaction and commitment outcomes (e.g., staff turnover, philanthropy)
4. Explain the importance of interaction among social, economic, physiological, and environmental factors
5. Describe the key steps of an evidence-based design process
   a. defining evidence-based goals and objectives
   b. finding sources for relevant evidence
   c. critically interpreting relevant evidence
   d. creating and innovating evidence-based design concepts
   e. developing an hypothesis
   f. collecting baseline performance measures
   g. monitoring implementation of design and construction
   h. measuring post-occupancy performance results

B. Healing and Therapeutic Environment

1. Define
   a. characteristics of a therapeutic environment
   b. typical patient, family, and staff outcome measures
2. Describe
   a. how evidence-based design can contribute to attributes of a therapeutic environment
   b. how evidence-based design might not demonstrate healing

C. Environment of Care (EOC)

1. Describe components of the EOC as defined by the *Guidelines for Design and Construction of Healthcare Facilities*
2. Explain the benefits of addressing EOC components as part of the evidence-based design practice

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D. The Board of Directors and Executive Leadership

1. Describe the role of the Board of Directors in setting the mission, vision, and strategic direction of the organization
2. Describe the role of the Board of Directors in understanding and championing evidence-based design processes
   a. creating the guiding principles and design guidelines
   b. selecting the interdisciplinary project team
   c. engaging in and monitoring the design process and outcomes
3. Describe the policy role of the Board of Directors in relation to the project's short- and long-term impacts on care delivery and outcomes relative to social, economic, environmental considerations
4. Describe the operational role of the CEO and executive / leadership team in relation to the
   a. evidence-based design process
   b. interdisciplinary project team role and level of authority
   c. organizational and operational strategies
5. Explain the benefits of involving
   a. clinicians in creating environments that optimize patient care
   b. support staff in creating environments that optimize operational performance
   c. patients and families in the design process
   d. the community in the strategic vision of the organization and the design process

E. Business Case(s)

1. Explain the importance of an evidence-based design business case related to executive commitment, operational improvements, financial performance, and decision-making criteria.
2. Describe the importance of developing the business case in the early phases of the evidence-based design process.
3. Describe the appropriate core team for developing a business case.
4. Understand the relationship between first costs (one-time capital budget) to the multi-year costs (ongoing operational budgets).

F. Interdisciplinary Project Team Approach

1. Describe the benefits of the interdisciplinary project team approach
2. Explain why evidence-based design can be limited by the traditional project delivery approach
3. Identify potential members of the interdisciplinary project team from within the following categories
   a. owners
   b. users
   c. consultants
   d. researchers

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4.	Explain responsibilities of the core team members of the interdisciplinary project team in
	a. defining the context of the project
	b. reviewing available information (e.g., organizational and facility data)
	c. validating the challenge
	d. determining the overarching goals
	e. defining the project scope and budget
	f. identifying design concepts
	g. identifying costs and return on investment (ROI)
5.	Identify the key qualifications of project consultants'
	a. knowledge in specific field of expertise
	b. basic knowledge in evidence-based design and EOC components
6.	Explain the role of the researcher within the interdisciplinary project team
	a. assisting in development of goals and hypotheses
	b. searching for relevant theory and evidence
	c. interpreting the implication of relevant knowledge, theory, and evidence related to the project
	d. collecting data and analyzing results
	e. reporting implications of results
	f. identifying limitations of the study
	g. disseminating results to the
	1) interdisciplinary team
	2) public (e.g., peer-reviewed, popular press)

II. RESEARCH

A. Process

1.	Identify the purpose and aim of the research
2.	Propose
	a. a plan to reference and evaluate existing research
	b. research to gather and evaluate new evidence
3.	Develop research questions / hypotheses
4.	Identify valid and reliable instruments / surveys / scales / metrics to measure the intended outcomes
5.	Collect study data related to research questions / hypotheses
	a. prior to the design project
	b. after design project completion
6.	Validate theories and experiential knowledge
7.	Perform studies to answer important questions directly related to the project
8.	Evaluate effects / outcomes of the completed project
9.	Present findings publicly

B. Existing Data Sources

1.	Locate relevant existing information

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a. academic papers
b. journal publications
c. web-based utilities (e.g., online journals, abstracting and indexing services, association websites)
d. lessons learned from completed healthcare facility building projects
2. Identify experiential knowledge
a. from the owner group
b. from the consultant team
C. Methodologies
1. Define
a. applied research
b. academic research
2. Define appropriate research methodologies
a. quantitative (e.g., experimental, quasi-experimental (comparative) and correlational studies)
b. qualitative (e.g., ethnography, grounded theory)
c. research tools (e.g., case studies, surveys/questionnaires, field observations, interviews, focus groups)
3. Identify when mixed methods is the most appropriate methodology (e.g., triangulation)
4. Validate theories and experiential knowledge
D. Critical Evaluation
1. Determine the relevance of evidence to the project based on one or a variety of factors (e.g., sources, author qualifications and / or experience, appropriateness of research methodology, replication, composition of sample, reliability, validity, generalizability)
2. Recognize the hierarchy of credible evidence
3. Evaluate the reliability, validity and generalizability of
a. sources
b. findings
4. Address conflicting findings and confounding variables
5. Discuss implications of design on care delivery and outcomes
III.   PREDESIGN
A. Interdisciplinary Team Creation
1. Select team members based on
a. qualifications within specific disciplines
b. complimentary skill sets
c. the project vision
d. appreciation for the value of the evidence based design
2. Develop
a. a steering committee

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b.	subcommittees as necessary for critical input in specialty areas
c.	a decision-making model

B. Visioning
1. Describe what the project hopes to accomplish
2. Gather information that would inform the project
3. Explore research that may inform the project vision
4. Develop
   a. an information repository
   b. guiding principles and design guidelines
   c. domains of potential research associated with the project

C. Strategic Facilities Plan
1. Define
   a. project goals and objectives
   b. the context and culture within which the project will be undertaken
   c. market positioning including proposed service offerings
   d. project metrics
      1) to study outcomes (financial, clinical, commitment)
      2) retrospective or prospective methodologies
2. Develop
   a. a preliminary budget based on the ability of an organization to obtain capital funding
   b. funding options and strategies as needed to obtain additional capital for evidence-based design
      1) features
      2) research costs
   c. an understanding of the upper limit on available funds
3. Assess available information to confirm
   a. alignment of vision with the corporate strategy
   b. the project's scope and implementation

D. Functional and Space Programming
1. Find existing data that may establish
   a. internal baselines
   b. external benchmarks
2. Define
   a. demand and utilization
   b. staffing patterns
   c. functional operation of support services
   d. space requirements
   e. the impact research will have on the program
   f. preliminary planning concepts
3. Relate departments and their functional areas

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4.	Develop diagrams of design elements defined in the functional program
5.	Use diagrams of design elements to test
	a. planning concepts
	b. diagrams against space requirements identified in the functional program
	c. evidence-based design features
6.	Address Facilities Guidelines Institute (FGI) Environment of Care (EOC) components
7.	React to new information that should impact the project
8.	Compare
	a. functional and space programs with guiding principles and design guidelines
	b. space requirements with the preliminary budget
9.	Evaluate the anticipated return on investment for evidence-based design features
10.	Adjust the budget or program to balance project objectives
11.	Propose research to gather new evidence to inform the program

IV. DESIGN

A. Conceptual

1.	Coordinate the functional program with the approved budget while incorporating accepted evidence-based design features
2.	Develop
	a. integrated conceptual diagrams including evidence-based design features
	b. a chain of logic that connects research findings and their interpretations to
	1) related design concepts
	2) hypotheses of expected outcomes
3.	Test the integrated conceptual design options against
	a. guiding principles and design guidelines
	b. EOC components to understand how concepts affect a variety of factors including
	▪ people
	▪ systems
	▪ layout / operations
	▪ physical environment
	▪ implementation
4.	Document
	a. principal options for a conceptual design
	b. areas that need further study

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B. Schematic Design

1. Develop multiple diagrams and other documents that illustrate the scale and relationship of all aspects of a project

2. Select the best option based on several factors
    - guiding principles
    - design guidelines
    - proposed budget
    - functional program
    - the relationship to EOC
    - expected outcomes

3. Document
    a. the selected schematic design
    b. hypotheses of outcomes

4. Review the chain of logic connecting research findings to design concepts and hypotheses for the selected concept

5. Select metrics to evaluate whether each hypothesis is supported

C. Design Development

1. Identify the impact of the design upon
    - people (e.g., staffing, users)
    - systems
    - physical environment
    - implementation
    - layout / operations (e.g., performance improvement, efficiency)

2. Document the project's size and character based on approved schematic design

3. Incorporate research findings into design concepts, related to, for example
    - design of each work area
    - acoustics
    - infection control finishes
    - lighting
    - MEP/FP

4. Coordinate
    a. operational and design activities involved in the project
    b. design development and the research proposal

5. Monitor early budget and return on investment numbers to assure consistency

6. Prepare critical mockups of new ideas

7. Conduct a final review of the design relative to guiding principles and design guidelines

D. Construction Documents

1. Prepare
    a. contract documents from approved design development consisting of detailed drawings and specifications

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b. a preliminary research report including hypotheses & expected outcomes and methods & metrics
2. Report expected construction costs and return on investment including a final evaluation of these factors
3. Develop an implementation plan to assure
a. infection control risk assessment issues are addressed
b. phasing meets operational objectives

V.   CONSTRUCTION AND OCCUPANCY

   A. Bid / Negotiation & Award

      1. Review bids for consistency with contract documents and evidence-based design features

      2. Coordinate with required parties so the award represents the intended project scope and evidence-based design goals

   B. Administer Construction of a Project

      1. Assure compliance with the evidence-based intent of contract documents

      2. Ensure integration of training across new processes and work flows in the new space

      3. Verify the commissioned building complies with the evidence-based intent

   C. Post-Occupancy Evaluation

      1. Compare completed project with design intent and program

      2. Review previously established research methodology

      3. Collect post-occupancy data as required by the research proposal

      4. Publish research results

      5. Explain the potential benefits and drawbacks of an independent third party evaluation