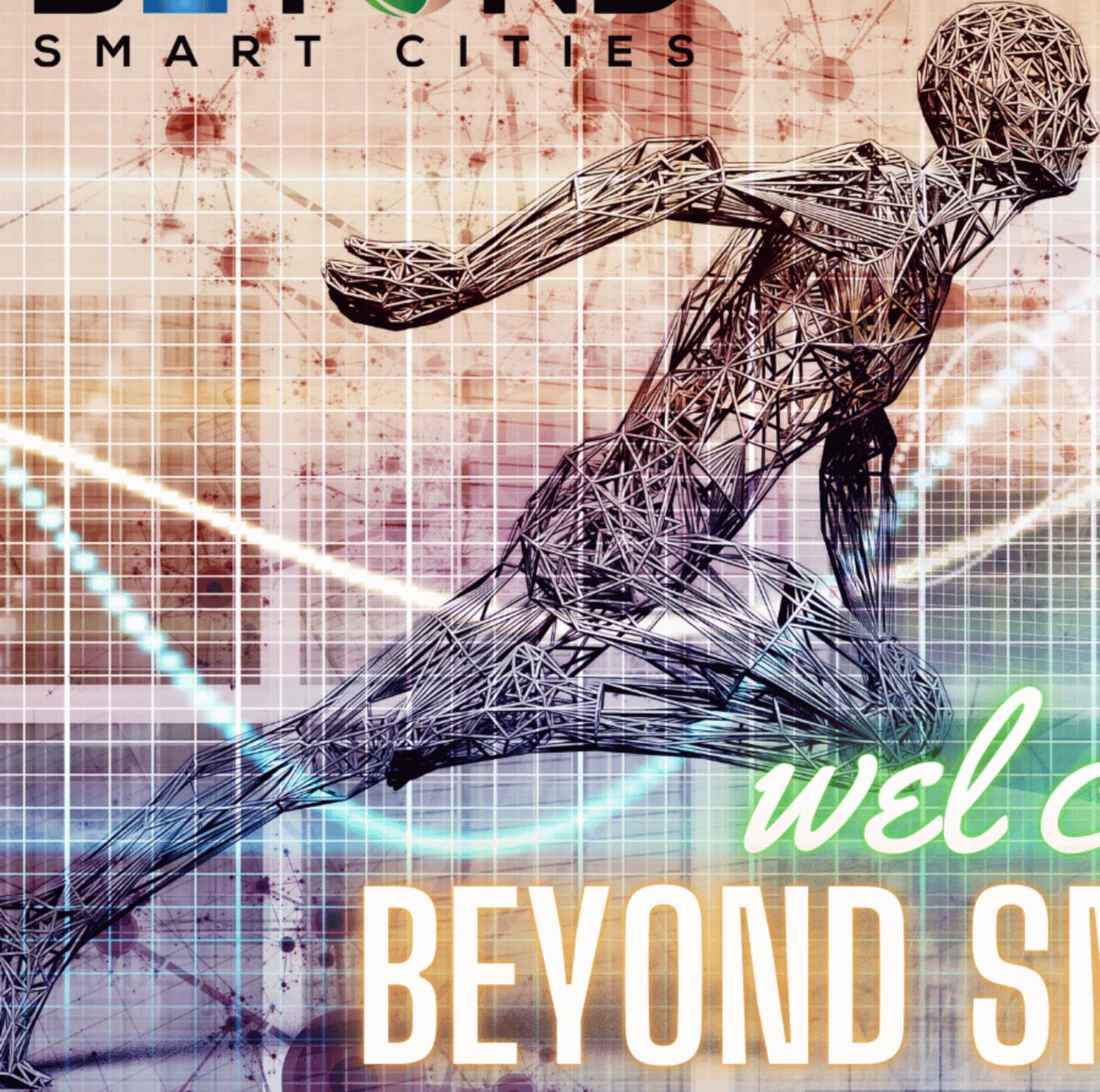


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# HEALTHCARE FACILITY DESIGN PROFESSIONAL HFDP OVERVIEW

ONLINE PROFESSIONAL COURSES LED BY THE WORLD'S TOP SPECIALISTS

**ONLINE TRAINING BY KRISHNAJI PAWAR**

LEED AP(BD+C), GSAS CGP, GCP, ISO 14001

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MODULE

**5**

# Certified Healthcare Facility Design Specialist Certification

KRISHNAJI PAWAR - CEO & FOUNDER

LEED AP(BD+C),GSAS CGP,GCP,ISO 14001

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# HEALTHCARE FACILITY DESIGN PROFESSIONAL HFDP OVERVIEW

The HFDP certification validates competency to Incorporate standards and guidelines as well as unique healthcare facility requirements and design principles in HVAC system design.

# Learning Objectives

- Introduction and Course Outline
- General Elements of Healthcare
- Health and built environment
- Health Care HVAC System Design Standards and Guidelines
- Certified Healthcare Facility Design Specialist Certification
- Testing, Balancing, and Commissioning
- Summary and Resources
- HFDP Practice Test V.4.1\_Test Your Knowledge



# INTRODUCTION

- HFDP certification is administered by the ASHRAE to enhance knowledge and skills in healthcare facility design.
- The certification acknowledges the unique complexities of healthcare design, requiring a specialized understanding of patient needs, regulatory compliance, safety standards, and operational workflow.

## **Key components of HFDP certification include:**

- Eligibility Criteria: Candidates must meet educational and professional experience requirements, often including a professional degree in architecture or a related field.
- Examination Structure: The examination assesses knowledge across domains critical to healthcare facility design, including regulatory standards, patient-centered design, operational efficiency, and sustainability and technology integration.
- Continuing Education Requirements: Professionals are required to engage in ongoing education to maintain the certification.
  - The certification is compared to a specialized surgical team versus a general practitioner, requiring specialized knowledge to address unique challenges in healthcare environments.
  - The HFDP certification is a critical credential in healthcare facility design, contributing to the overall quality of healthcare environments and ensuring professionals are well-prepared to meet the challenges of this dynamic field.

# ASHRAE HEALTHCARE FACILITY DESIGN PROFESSIONAL CERTIFICATION OVERVIEW



- Validates competency in HVAC system design, incorporating standards, guidelines, and unique healthcare facility requirements.
- Enhances reputation and career opportunities for healthcare facility design professionals.
- Demonstrates competency in critical healthcare facility design knowledge and skills.
- HFDP digital badge ensures enhanced recognition.
- ANSI National Accreditation Board (ANAB) accredited personnel certification program ensures fairness and validity.
- Employers support ASHRAE HFDP for recruitment, reputation, professional development, and job satisfaction.

# HFDP CERTIFICATION OVERVIEW

- Validates competency in HVAC system design for healthcare facilities.
- Applies energy efficiency to healthcare, HVAC design to medical functional areas.
- Applies methods to achieve static pressure control.
- Design contingencies for utility system failure.
- Ensures continuity of service and control strategies for pathogen growth.
- Incorporates HVAC system monitoring strategies.
- Incorporates ICRA Considerations in HVAC Design.
- Includes smoke management requirements.
- Recognizes common standards and guidelines.

## Earning Criteria

- Submits completed application and passes the HFDPP Certification Exam.
- Eligibility requirements include education and healthcare HVAC&R design work experience.
- Upholds a Code of Ethics.
- Passes a proctored, closed book/closed notes, two-hour, 100-question, multiple-choice exam.



# HFDP CERTIFICATION EXAMINATION CONTENT OUTLINE

<b>I. MEDICAL BACKGROUND INFORMATION</b>
<b>A. Terminology</b>
1. Recognize relevant medical terms (e.g., immune compromise).
2. Demonstrate understanding of various healthcare occupancy types.
<b>B. Equipment</b>
1. Describe relationship of medical equipment to HVAC design.
2. Identify basic medical equipment.
<b>C. Departments and Medical Procedures</b>
1. Apply understanding of medical procedures to room designs.
2. Apply HVAC design to medical functional areas.
<b>D. Airborne vs. Contact Infection and Contamination</b>
1. Distinguish between airborne and contact transmission of pathogens.
2. Demonstrate understanding of transmission, infection, and diseases.
<b>E. Common Disease Organisms</b>
1. Describe conditions of growth of disease organisms.
<b>F. Contamination of Domestic Water Supply</b>
1. Evaluate conditions under which pathogens grow.
2. Describe known amplification sites for pathogens.
3. Identify control methods for limiting pathogen growth.
<b>II. STANDARDS and GUIDELINES for HVAC SYSTEM DESIGN for HEALTHCARE FACILITIES</b>
<b>A. Standards and Guidelines</b>
1. Recognize common standards from ASHRAE.
2. Recognize common guidelines.
3. Recognize the requirements of the appropriate accreditation organization.
<b>B. Regulatory Codes</b>
1. Demonstrate understanding of ASHRAE energy code requirements.
2. Recognize the requirements of local authorities and the effect on design.

<b>III. HVAC SYSTEM DESIGN for HEALTHCARE FACILITIES</b>
<b>A. Static Pressure Control</b>
1. Identify types of rooms that require static pressure control.
2. Apply methods to accomplish static pressure control.
3. Describe methods for measurement, notification, and documentation of static pressure control.
<b>A. Energy Efficiency</b>
1. Determine inefficiencies in healthcare system design.
2. Apply aspects of energy efficiency specific to healthcare.
3. Describe exemptions from the energy standard.
4. Demonstrate knowledge of limitations of energy saving strategies.
5. Demonstrate understanding of variable volume system application.
6. Demonstrate knowledge of energy use and management.
7. Articulate energy recovery technologies.
<b>C. Room Air Distribution</b>
1. Design systems with proper air flows and pressurizations.
2. Calculate air flow rates to comply with room air change rates.
3. Demonstrate understanding of the fundamentals of diffuser placement.
4. Diagnose improper room air distribution and pressurization.
5. Describe psychrometric sensor placement.
<b>D. Equipment and Application</b>
1. Demonstrate knowledge of air handling systems design.
2. Identify security concerns related to HVAC.
3. Locate equipment.
4. Demonstrate knowledge of psychrometric principles.

# HFDP CERTIFICATION EXAMINATION CONTENT OUTLINE

<b>IV. UNIQUE REQUIREMENTS for HEALTHCARE FACILITIES</b>
<b>A. Central Plants - Describe need for redundancy to current standards.</b>
<b>B. Medical Equipment</b>
1. Demonstrate understanding of contribution to loads.
2. Demonstrate understanding of special HVAC requirements.
3. Describe major diagnostic and treatment equipment.
4. Describe application of sterilizers.
<b>C. Fire and Life Safety (including smoke control)</b>
1. Describe smoke management requirements for healthcare facilities (e.g., OR and patient room).
2. Demonstrate understanding of ventilation system requirements for medical gas storage areas.
3. Demonstrate understanding of healthcare facility compartmentalization.
<b>D. Operations and Maintenance</b>
1. Maintain equipment accessibility.
2. Maintain functionality during maintenance.
3. Demonstrate understanding of healthcare facility operations.
4. Describe consequences of continuity of service.
5. Prescribe procedures for abnormal operation conditions.
<b>E. Infection Control</b>
1. Describe the primary elements of an ICRA process.
2. Describe the role of the HVAC designer in the ICRA process.
3. Demonstrate understanding of how the ICRA affects mechanical specifications.
4. Demonstrate understanding of the various ICRA engineering controls used during construction.
5. Demonstrate understanding of contamination control.
6. Describe strategies for epidemiology related to HVAC.
<b>F. Disaster Mitigation, Management, and Recovery</b>
1. Demonstrate understanding of design contingencies following utility system failure.
2. Evaluate needs following catastrophic events.
3. Demonstrate understanding of current literature.
4. Demonstrate understanding of hazard vulnerability analysis.
<b>G. Controls and Instrumentation</b>
1. Demonstrate understanding of HVAC system monitoring strategies.
2. Demonstrate understanding of room pressure controls.
3. Monitor mechanical, electrical, and fire shut down controls.
4. Monitor temperature and humidity controls.

## **H. Testing, Balancing, and Commissioning**

1. Demonstrate understanding of existing conditions prior to renovation.
2. Recognize performance metrics of commissioning.
3. Describe test procedures for commissioning various areas requiring unique pressure relationships.
4. Demonstrate understanding of various control sequences.

# ASHRAE'S HEALTHCARE FACILITY DESIGN PROFESSIONAL (HFDP) CERTIFICATION PROGRAM LAUNCHES

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- HFDP is a computer-based exam testing healthcare facility design mastery.
- With more than 50,000 members from over 132 nations, ASHRAE is a diverse organization dedicated to advancing the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world.
- Certification identifies individuals with successful design and operation of healthcare facilities.
- Future certifications planned for sustainable facility design, commissioning, operations, and maintenance.
- Technical content developed in collaboration with the American Society for Healthcare Engineering.





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