

# Skills for “Commercial Building Analysis”

**INSTRUCTIONS:** Key activities have been identified for each Critical Work Function (A through H, below). Core Competencies/Skills (CC/S) are essential to perform the Key Activities. Indicate below which of the CC/Ss you will or have addressed in your course. Place an “x” in the blanks that apply. Submit this sheet along with your “NEW COURSE DEVELOPMENT OR EXISTING COURSE ASSESSMENT REPORT”

## A. Assess requirements and design opportunities:

### Key activities include:

- Understand relevant codes, regulations, standards
- Site assessment
- Interview customer, operators, and users
- Identify related business/building development
- Research customer’s business profile and culture
- Apply knowledge of climate/user environment

### Core Competencies/Skills Include:

- \_\_\_ BA-A1--Knowledge of how to use energy and industry codes
- \_\_\_ BA-A2--Construction and design principles
- \_\_\_ BA-A3--Experience with on-site assessment of facilities
- \_\_\_ BA-A4--Interpersonal/interviewing skills
- \_\_\_ BA-A5--Research skills
- \_\_\_ BA-A6--Planning and organizational skills
- \_\_\_ BA-A7--Data gathering and documenting skills
- \_\_\_ BA-A8--Foundational building systems knowledge
- \_\_\_ BA-A9--Knowledge of organizational of human behavior
- \_\_\_ BA-A10--Understanding sustainability principles

## B. Identify building systems, functions, and interactivity:

### Key activities include:

- Facility, equipment inspection, and baseline measurement
- Determine level of sophistication of systems and controls
- Identify operations & maintenance conditions and personnel
- Identify building issues and concerns
- Review existing technical documentation and specifications
- Define building utilization

### Core Competencies/Skills Include:

- \_\_\_ BA-B1--Foundational building systems knowledge
- \_\_\_ BA-B2--Ability to read plans/schematics
- \_\_\_ BA-B3--Knowledge of different building automation systems
- \_\_\_ BA-B4--Ability to use basic diagnostic tools
- \_\_\_ BA-B5--Understanding how different commercial HVAC systems functions
- \_\_\_ BA-B6--Ability to ascertain and document assumptions/estimations (estimating building/room use patterns, etc.)
- \_\_\_ BA-B7--Knowledge of different lighting technologies
- \_\_\_ BA-B8--Understanding interactions between different building systems
- \_\_\_ BA-B9--Ability to assess occupant safety and health impacts of building systems
- \_\_\_ BA-B10--Basic understanding of electricity and how electrical systems work
- \_\_\_ BA-B11--Basic understanding of fluid dynamics
- \_\_\_ BA-B12--Psychrometrics (pressure, humidity, and temperature)
- \_\_\_ BA-B13--Knowledge of building toxicity issues (mold, asbestos, lead, etc.)
- \_\_\_ BA-B14--Knowledge of personal safety and protection

- \_\_\_ BA-B15--Understanding of facility operations and maintenance services

## C. Energy information modeling and analysis:

### Key activities include:

- Identify technology solutions
- Analyze utility cost and consumption profiles
- Analyze building systems data
- Establish energy baselines
- Perform energy modeling or simulation and analyze results
- Identify and evaluate energy efficiency measures (EEMs)

### Core Competencies/Skills Include:

- \_\_\_ BA-C1--Advanced computer analysis (building simulation modeling software)
- \_\_\_ BA-C2--Ability to create and manipulate spreadsheets
- \_\_\_ BA-C3--Understanding of energy generation and distribution systems
- \_\_\_ BA-C4--Understand typical energy efficiency measures and how and when to apply them
- \_\_\_ BA-C5--Understanding energy units of measure
- \_\_\_ BA-C6--Understanding modeling tools and limitations
- \_\_\_ BA-C7--Understanding the science of energy modeling (thermodynamics)
- \_\_\_ BA-C8--Understanding energy economics and rate structures
- \_\_\_ BA-C9--Ability to benchmark calculation results to “rules of thumb” (reality check)
- \_\_\_ BA-C10--Basic understanding of statistics and their application
- \_\_\_ BA-C11--Ability to use climate data to normalize energy data
- \_\_\_ BA-C12--Knowledge of metering technologies and understanding load profiles
- \_\_\_ BA-C13--Knowledge of standard energy benchmarking tools (Energy Use Index, Energy Cost Index, Energy Star, Energy Labeling, CBECS)

## D. Economic and business case development:

### Key activities include:

- Determine cost of EEMs
- Determine the value of the energy saved
- Conduct life-cycle analysis of EEMs
- Determine utility and other incentives (taxes, permitting, etc.)
- Assessing the investment value of EEMs
- Quantifying environmental benefits (carbon reduction)

### Core Competencies/Skills Include:

- \_\_\_ BA-D1--Ability to define and evaluate contractors and proposals
- \_\_\_ BA-D2--Understanding of project economic analysis methodologies (LCCA, ROI, Simple Payback, discount rate, savings to investment ratio)
- \_\_\_ BA-D3--Understanding basic business economics and management

- \_\_\_ BA-D4--Ability to evaluate financial tools/resources for projects
- \_\_\_ BA-D5--Understanding basic maintenance functions and cost
- \_\_\_ BA-D6--Knowledge of construction cost estimation
- \_\_\_ BA-D7--Ability to quantify/qualify environmental benefits
- \_\_\_ BA-D8--Ability to identify and describe non-energy benefits to business operations
- \_\_\_ BA-D9--Writing and presentation skills

#### E. Present data and opportunities for energy efficiency:

##### Key activities include:

- Customize results for client needs (bundling/scenarios)
- Present baseline and EEM recommendations
- Refine solutions based on client feedback
- Develop reports, graphic presentations, and proposals
- Support negotiation and contract completion

##### Core Competencies/Skills Include:

- \_\_\_ BA-E1--Writing and presentation skills
- \_\_\_ BA-E2--Ability to communicate energy solutions to multiple audiences
- \_\_\_ BA-E3--Ability to translate technical information to non-technical audiences
- \_\_\_ BA-E4--Ability to prioritize and summarize
- \_\_\_ BA-E5--Basic knowledge of contracts of agreements
- \_\_\_ BA-E6--Ability to communicate and interact with company executives and other stakeholders
- \_\_\_ BA-E7--Ability to show benefits of energy solutions to a business
- \_\_\_ BA-E8--Ability to align energy solutions to business type and priorities

#### F. Communications with customers and other stakeholders

##### Key activities include:

- Manage projects
- Client education, outreach, and marketing
- Coordinating among staff, departments, contractors, and public entities
- Advise and interact with customers and other stakeholder groups
- Develop or support emerging opportunities (technologies, financial)
- Empowering staff in client organizations to achieve EEMs

##### Core Competencies/Skills Include:

- \_\_\_ BA-F1--Ability to set expectations and deliverables
- \_\_\_ BA-F2--Ability to communicate professionally
- \_\_\_ BA-F3--Ability to make group presentations to various stakeholders
- \_\_\_ BA-F4--Ability to facilitate a design/planning process
- \_\_\_ BA-F5--Ability to effectively participate in a group environment
- \_\_\_ BA-F6--Strong writing and oral communication skills
- \_\_\_ BA-F7--Strong mediation, conflict resolution, and negotiation skills
- \_\_\_ BA-F8--Ability to adapt to changing circumstances
- \_\_\_ BA-F9--Ability to collaborate with other technical experts

- \_\_\_ BA-F10--Ability to teach clients and other stakeholders the benefits of energy solutions and instruct on particular technology applications
- \_\_\_ BA-F11--Ability to conduct an effective inquiry process
- \_\_\_ BA-F12--Ability to plan, schedule, execute projects, and meet deliverables

#### G. Professional standards, ethics, and leadership: Key activities include:

- Maintain professional credentials and engage in continuous learning
- Participate and contribute to professional and trade organizations
- Serve as champion for energy conservation
- Mentor colleagues, peers, and students
- Participate in updating energy standards and codes
- Adhere to professional codes of conduct

##### Core Competencies/Skills Include:

- \_\_\_ BA-G1--Ability to understand and interpret technical codes, regulations, and protocols
- \_\_\_ BA-G2--Ability to effectively collaborate with peers and competitors (in the interest of advancing the industry)
- \_\_\_ BA-G3--Ability to self-direct personal professional development
- \_\_\_ BA-G4--Understanding of relevant professional certifications and credentials
- \_\_\_ BA-G5--Understanding of relevant professional associations and opportunities
- \_\_\_ BA-G6--Ability to understand and apply emerging trends to the profession
- \_\_\_ BA-G7--Ability to support a learning environment in the workplace
- \_\_\_ BA-G8--Ability to teach and mentor peers, colleagues, and students

#### H. Measurement, verification, and response:

##### Key activities include:

- Physical verification of the EEMs
- Perform data logging and trending
- Develop and implement M&V plan
- Respond to findings with corrections or additional measures
- Document EEM results with client and share success stories
- Identify and share lessons learned with internal stakeholders and industry

##### Core Competencies/Skills Include:

- \_\_\_ BA-H1--Ability to define relevant M&V to EEM
- \_\_\_ BA-H2--Ability to define systematic M&V protocols for implementation
- \_\_\_ BA-H3--Ability to utilize data logger for performance verification
- \_\_\_ BA-H4--Ability to use measurement tools for performance verification
- \_\_\_ BA-H5--Understand and interpret verification reports
- \_\_\_ BA-H6--Ability to write M&V reports
- \_\_\_ BA-H7--Understanding trend logging and building automation systems
- \_\_\_ BA-H8--Ability to develop a response plan based on M&V results

