

COMMERCIAL ENERGY PLANS EXAMINER CERTIFICATION EXAM OUTLINE

EXAM ID: 78

- 70 multiple-choice questions
- 3-1/2-hour time limit
- Open book

01. GENERAL PLAN REVIEW ISSUES 16%

0101. **APPLICABILITY:** Determine if the building is required to comply with the provisions of the energy code.
0102. **ADEQUACY OF CONSTRUCTION DOCUMENTS:** Determine that the content of the plans, the specifications, and all supporting data necessary to verify compliance with the energy code are available. Verify that field inspection requirements necessary to determine compliance with the energy code are specified on the plans.
0103. **LOCATION:** Verify that the design criteria specified for the building is correct.
0104. **PRESCRIPTIVE COMPLIANCE DOCUMENTATION:** Where a prescriptive compliance method is utilized, verify compliance of the submittal.
0105. **PERFORMANCE COMPLIANCE DOCUMENTATION:** Verify compliance of the submittal with regard to standard design data and proposed design data where a performance compliance method is utilized.
0106. **ADDITIONS, ALTERATIONS & CHANGE OF USE OR OCCUPANCY:** When additions or alterations are made to conditioned space, verify whether the additions or alterations are required to comply with provisions of the code for new buildings. Determine if the occupancy or use of the structure has changed so as to require energy code compliance.

02. BUILDING ENVELOPE 27%

0201. **GENERAL ENVELOPE REQUIREMENTS:** Determine and identify conditioned, indirectly-conditioned, or unconditioned spaces.
0202. **OPAQUE ENVELOPE COMPLIANCE:** Verify that construction documents contain the correct R-Values for roof/ceiling, floor, and wall assembly and insulation placement.

- 0203. WINDOWS, SKYLIGHTS AND DOORS: Verify that the areas and U-factors for glazing and doors are specified. When required, verify solar heat gain coefficients (SHGC), and projection factors (PF) for glazing are specified.
- 0204. AIR LEAKAGE: Verify that air infiltration methods are indicated as required by code.
- 0205. MOISTURE CONTROL: Verify that moisture control methods are indicated as required by code.

03. MECHANICAL SYSTEMS

25%

- 0301. MECHANICAL SUMMARY: Verify that the construction documents contain a list of mechanical equipment, efficiencies and sizing.
- 0302. ENERGY RECOVERY AND COMPLEX SYSTEMS: Identify air and hydronic system requirements and prohibitions applicable to complex systems and verify compliance with code. Identify energy recovery requirements applicable to simple and complex systems and verify compliance with code.
- 0303. ECONOMIZERS: Verify that economizers or equivalent efficiencies are provided when required. Verify that construction documents for economizer controls indicate compliance.
- 0304. DUCT AND PIPING SYSTEMS: Verify that construction documents for duct and piping insulation and duct sealing criteria are as required by code.
- 0305. FAN AND PUMP SYSTEMS: Evaluate requirements for part load controls affecting fan or pump system energy demand as required by code.
- 0306. HVAC CONTROLS: Verify that thermostatic controls have been provided for each temperature zone. Verify compliance of thermostat dead band requirements. Verify that humidistats comply with range provisions. Verify that time clocks are provided for systems when required. Verify that automatic setback or shutdown controls are provided for systems when required. Verify control interlock requirements to reduce reheating/recooling where simultaneous heating and cooling is provided. Verify temperature reset controls for multi-zone units. Verify automatic temperature reset controls for air and hydronic systems.

04. ELECTRICAL POWER & LIGHTING SYSTEMS

27%

- 0401. EXEMPT LIGHTING & EQUIPMENT: Identify exempt lighting and equipment.
- 0402. LIGHTING POWER: Verify that the connected lighting load complies with the maximum interior lighting power allowance (ILPA) calculations, exit sign provisions and minimum exterior lighting power efficacies.
- 0403. LIGHTING CONTROLS: Verify compliance of lighting controls for each space in the building. Verify that automatic switching is provided as required by code. Verify tandem wiring requirements. Verify automatic shut-off controls for exterior lighting.
- 0404. WIRING METHODS & METERING: Verify tandem wiring requirements are specified for one- and three-lamp fluorescent fixtures. Verify metering installation is indicated as required.

05. BUILDING SERVICE WATER HEATING SYSTEMS & EQUIPMENT 5%

- 0501. WATER HEATING EQUIPMENT: Verify code compliance of construction documents for equipment efficiency, temperature controls, piping insulation, circulation pump controls, heat traps, point of use controls, pool heaters and covers are indicated as specified on construction documents and as required by code.