Texas Department of Licensing and Regulation

INDUSTRIALIZED HOUSING AND BUILDINGS

P.O. Box 12157, Austin, TX 78711 (800) 803-9202 [In state only] (512) 463-7353 Fax: (512) 475-4364
Email address: industrialized.buildings@license.state.tx.us Internet address: www.license.state.tx.us

Texas Building Energy Compliance Form for Commercial Industrialized Buildings

2003 International Energy Conservation Code

Texas law, Chapter 388, Subtitle C, Title 5, Health and Safety Code, requires new building construction to comply with the Texas Building Energy Efficiency Standards, which uses the International Energy Conservation Code (IECC) as it existed on May 1, 2001. This form can be used to document the compliance of buildings constructed under the Texas Occupations Code, Chapter 1202, Industrialized Housing and Buildings, which fall outside of the jurisdiction of a municipality.

Manufacturer's Name and Texas IHM Registration #: _____

Project Name or Model #: _____

City, Zip, & County of Installation or Climate Zone(s) for which designed: _____

Module serial #'s: _____ Decal #'s: _____

This building is (select only one of the following options):

☐ 1. Self-certified by the manufacturer to meet or exceed minimum requirements.
Complete **Part A, *Self-Certification Form***; or

☐ 2. Inspected by a code-certified inspector and determined to meet or exceed the minimum requirements. Complete **Part B, *Inspection Information,*** below and attach inspection documents; or

☐ 3. Certified by an accredited energy efficiency program.
Complete **Part C, *Certification Information,*** below and attach copy of certification documents.

Part A. Self-Certification Form

Complete the attached self-certification checklist or attach copy of COMcheck checklist

☐ Self-Certification Checklist attached or ☐ COMcheck Checklist attached

Manufacturer's Self-Certification

I, _____, certify that all of the above information is correct and that the construction
Manufacturer's Compliance Control Manager – please print
described meets or exceeds the Texas Building Energy Efficiency Standards.

_____ _____
Signature (Compliance Control Manager) Date

Part B. Inspection Information - *Attach a signed and dated copy of the inspection checklist used by inspector*

Inspector name/address: _____

_____

Inspector certified as Commercial Energy Inspector by _____

Certification number: _____ Signature: _____ Date: _____

Part C. Certification Information - *Attach copy of certificate and rating checklist*

Name of Certifying Agency: _____

Program Sponsor/Agency: _____

Project Rating or Building Energy Rating System Score: _____

Is rating based on performance testing of this project? ☐ Yes ☐ No

Rater name/address: _____

_____

Rater certified by: _____ Certification number: _____

Rater Signature: _____ Date: _____

Part A. Self-Certification Inspection Checklist

Check option chosen for part A on page 1 of form and attach either COMcheck checklist or the following checklist

Compliance Features	Maximum Value	Minimum Value	Installed Value	Exceeds	Meets
1. Insulation (R-values and U-factors labeled as certified) Requirements					
Wall Insulation					
Cavity				☐	☐
Continuous				☐	☐
Floor insulation (over unconditioned spaces or crawl spaces)				☐	☐
Roof assembly insulation				☐	☐
Duct insulation – reference 803.2.8		R-5, R-8		☐	☐
2. Windows and Doors Requirements					
Glazing % of total exterior wall area = _____% (<=50%) If glazing % of total exterior wall area >50% - compliance with ASHRAE/IESNA 90.1-2001 required					
Window and glazed doors U-factor (labeled if < default – reference 102.5.2)	See Tables	N/A		☐	☐
Window and glazed doors SHGC (labeled if < default – reference 102.5.2)	See Tables	N/A		☐	☐
Exterior doors (opaque) U-factor (same as for glazed, labeled if < default – reference 102.5.2)	See Tables	N/A		☐	☐
3. Envelope Requirements					☐
All joints and penetrations are caulked, gasketed, weatherstripped, or otherwise sealed in an approved manner – reference 802.3.3					☐
Duct connections properly sealed with mastic or UL 181 labeled tape (unlisted duct tape not allowed) – reference 803.2.8					☐
Recessed lighting fixtures gasketed and IC rated – reference 802.3.7					☐
Windows and doors certified and labeled as meeting leakage requirements – reference 802.3.1 and table 502.1.4.1					☐
Vapor retarders installed in all nonvented framed areas in ceilings, walls, and floors on warm-in-winter side of the insulation (vapor retarders not required in zones 1 through 7) – reference 802.1.2					☐
4. Equipment Requirements (Equipment efficiency ratings must meet or exceed current NAECA standards)					
Water heater – Reference 804.2					☐
Heat Pump – Reference 803.2.2 and Tables 803.2.2(2) and 803.2.2(3)					☐
Air Conditioner – Reference 803.2.2 and Tables 803.2.2(1), 803.2.2(3), and 803.2.2(4)					☐
Furnace – Reference 803.2.2 and Table 803.2.2(4)					☐
Other (describe) – Reference Tables in Chapter 8					☐
5. Mechanical Requirements					
Load calculations per 2001 ASHRAE Fundamentals – reference 803.2.1					☐
All equipment and systems sized no greater than needed to meet calculated loads – reference 803.2.1.1					☐
Minimum one programmable thermostat per system – reference 803.2.3.1					
Minimum one humidity control device per installed humidification/dehumidification system – reference 803.3.3.1					☐
Thermostats controls have 5 degree F deadband – reference 803.3.3.2					☐
Automatic controls: setback to 55 degree F (heat) and 85 degree F (cool); 7-day clock, 2-hour occupant override, 10-hour backup – reference 803.3.3.3					☐
Economizer provided on systems with cooling capacity greater than 65,000 Btu/h in other than zones 1, 2, 3b, 5a, or 6b – reference 803.2.6					☐
Outside-air source for ventilation; system capable of reducing OSA to required minimum – reference 803.2.5					☐
Operation and maintenance manual shipped with building – reference 803.3.8.3					☐
Balancing devices provided in accordance with IMC 603.17 – reference 803.3.8.1					☐
HVAC refrigerant lines insulated – reference 803.2.9 and 803.3.7 and table 803.3.7					☐
Water heaters have setpoint of 110 degrees F for equipment serving dwelling units and 90 degrees F for equipment serving other occupancies – reference 804.3					☐
Water heater has integral heat trap or provided with heat trap – reference 804.4					☐
Automatic circulating hot water systems or heat trace arranged to be conveniently turned off automatically or manually when not in use – reference 804.6					☐
Insulate all circulating hot water pipes. Insulate first 8 feet of piping in noncirculating water heaters without integral heat traps – reference 804.5					☐
Stair and elevator shaft vents equipped with gravity or motorized dampers – reference 802.3.4					☐

Compliance Features	Maximum Value	Minimum Value	Installed Value	Exceeds	Meets
6. Lighting Requirements					
☐ Entire Building Method - Total area = _____ sf – reference 805.5.2.1	____ Watts	NA	___ Watts		☐
☐ Tenant Area or Portion of Building Method – reference 805.5.2.2		Area (sf)			
Area 1 (describe)	____ Watts		___ Watts		☐
Area 2 (describe)	____ Watts		___ Watts		☐
Area 3 (describe)	____ Watts		___ Watts		☐
Area 4 (describe)	____ Watts		___ Watts		☐
Area 5 (describe)	____ Watts		___ Watts		☐
Independent controls for each space (switch/occupancy sensor). Exception – security lighting, building lobby/retail store/mall – reference 805.2.1.					☐
Each area has a least one manual control located so that occupants can see area controlled by switch, or switch that indicates that lights are on or off, or occupant-sensing device – reference 805.2.1.					☐
Two switches, dimmer, or occupancy sensor in each space that allows occupants to reduce lighting load by 50%. Exceptions – only one luminaire in space; areas controlled by an occupant-sensing device; the area is a corridor, storage, restroom, or lobby; guestrooms; or spaces that use less than -0.6 watts per square foot – reference 805.2.2.1.					☐
Photocell/astronomical time switch on exterior lights. Exception – large covered areas requiring lighting during daylight hours – reference 805.2.3.					☐
Master switch at entry door of hotel and motel guest rooms. In multiple-room suites, standard control device required at entrance to each separate room – reference 805.2.2.3.					☐
Tandem wired one-lamp and three-lamp ballasted luminaires. Exception – Electronic high-frequency ballasts; luminaries on emergency circuits; luminaries with no available pair in same area – reference 805.3.					☐
Exterior Lighting Requirements:					
Types of exterior lighting: ☐ Fluorescent ☐ Metal Halide ☐ High-Pr Sodium					☐
When supplied through the building electrical service, energy-efficient lighting used when illuminating paths, walkways, and parking areas has a source efficacy of 45 lumens per watt or greater – reference 805.6.					☐

Requirements Description Notes: The following provides a more detailed explanation of some of the requirements listed in the above checklist.

1. For above-grade walls, where both cavity and continuous insulation values are required, both requirements shall be met – reference 802.2.1.
2. For blown or sprayed insulation, the initial installed thickness, settled thickness, coverage area, and number of bags used must be clearly posted. Thickness markers must be placed at least every 300 square feet – reference 102.5.1.
3. All insulation requirements assume the insulation is installed at its standard thickness. If insulation is compressed, the R-value is reduced and the building may not meet the requirements – reference 102.2.
4. NFRC label with U-factor and SHGC required on fenestration products where the design values are less than defaults in Tables 102.5.2(1), 102.5.2(2), and 102.5.2(3) – reference 102.5.2.
5. A label applied to the window or door assembly by the manufacturer of the assembly is required to verify the air leakage requirements of Table 502.1.4.1 – reference 802.3.1.
6. Design heating and cooling loads for the building must be determined using procedures equivalent to those in the ASHRAE Handbook of Fundamentals. – reference 803.2.1.
7. All equipment and systems must be sized no greater than needed to meet calculated loads. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options – reference 803.2.1.1 and 803.3.1.
   Exception: The equipment and/or system capacity may be greater than calculated loads for standby purposes. Standby equipment must be automatically controlled to be off when the primary equipment and/or system is operating – reference 803.3.1.1.
   Exception: Multiple units of the same equipment type whose combined capacities exceed the calculated load are allowed if they are provided with controls to sequence operation of each unit based on load – reference 803.3.1.1.
8. Each heating or cooling system serving a single zone must have its own programmable thermostat with the capability to set back or shut down the system based on day of the week and time of day and that provides a readily accessible manual override – reference 803.2.3.1.
9. Thermostats controlling both heating and cooling must be capable of maintaining a 5 degree F deadband (a range of temperature where no heating or cooling is provided). Exception: Deadband capability is not required if the thermostat does not have automatic changeover capability between heating and cooling – reference 803.3.3.2.
10. The system or zone control must be a programmable thermostat or other automatic control meeting the following criteria: a) capable of automatically setting back temperature to 55 degrees F during heating and setting up to 85 degrees F during cooling; b) capable of automatically setting back or shutting down systems during unoccupied hours using 7 different day

schedules; c) have an accessible 2-hour occupant override; d) have a battery back-up capable of maintaining programmed settings for at least 10 hours without power – reference 803.3.3.3.
Exception: A setback or shutoff control is not required on thermostats that control systems serving areas that operate continuously – reference 803.3.3.3.
Exception: A setback or shutoff control is not required on systems with total energy demand of 2 kW (6,826 Btu/h) or less – reference 803.3.3.3

11. Outdoor-air supply systems with design airflow rates > 3,000 cfm of outdoor air and all exhaust systems must have dampers that are automatically closed while the equipment is not operating – reference 803.2.7.
Exceptions: systems serving areas designed for continuous operation; systems with readily accessible manual dampers; and where restricted by health and life safety codes.
12. The system must supply outside ventilation air as required by Chapter 4 of the International Mechanical Code. If the ventilation system is designed to supply outdoor-air quantities exceeding minimum required levels, the system must be capable of reducing outdoor-air flow to the minimum required levels – reference 803.2.5.
13. Air ducts must be insulated to the following levels. a) Supply and return air ducts and plenums for conditioned air located in unconditioned spaces (spaces neither heated nor cooled) must be insulated with a minimum of R-5. Unconditioned spaces include attics, crawl spaces, unheated basements, and unheated garages. b) Supply and return air ducts and plenums must be insulated to a minimum of R-8 when located outside the building. c) When ducts or plenums are located within exterior components (e.g., floors or roofs), minimum R-8 insulation is required only between the duct and the building exterior – reference 803.2.8.
Exception: Duct insulation is not required on ducts within equipment – reference 803.2.8.
Exception: Duct insulation is not required when the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15 degrees F – reference 803.2.8.
14. All joints, longitudinal and transverse seams, and connections in ductwork must be securely sealed using welds; mechanical fasteners with seals, gaskets, or mastics; mesh and mastic sealing systems; or tapes. Tapes and mastics must be listed and labeled in accordance with UL 181A or UL 181B. Unlisted duct tape is not permitted – reference 803.2.8.
15. Ductwork shall be constructed and erected in accordance with the International Mechanical Code – reference 803.2.8.1.
16. Operation and maintenance documentation must be provided to the owner that includes at least the following information. a) Equipment capacity (input and output) and required maintenance actions; b) Equipment operation and maintenance manuals; c) HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined set points must be permanently recorded on control drawings, at control devices, or for digital control systems, in programming comments; d) Complete narrative of how each system is intended to operate – reference 803.3.8.3.
17. Each supply air outlet or diffuser and each zone terminal device must have its own balancing devices. Acceptable balancing devices include adjustable dampers located within the ductwork, terminal devices, and supply air diffusers – reference 803.3.8.1.
18. Water-heating equipment must be provided with controls that allow the user to set the water temperature to 110 degrees F for a dwelling unit and 90 degrees F for other occupancies. Controls must limit output temperatures of lavatories in public facility restrooms to 110 degrees F – reference 804.3.
19. Stair and elevator shaft vents must be equipped with motorized dampers capable of being automatically closed during normal building operation and interlocked to open as required by fire and smoke detection systems. All gravity outdoor air supply and exhaust hoods, vents, and ventilators must be equipped with motorized dampers that will automatically shut when the spaces served are not in use – reference 802.3.4.
Exception: gravity dampers are permitted in buildings less than 3 stories in height above grade.