

# A Closer Look Inspection Service

## 2012 IECC Commercial DFW area handout

- 101.4.1 2012 IECC applies to new construction and new work
- 101.4.2 Historic Register or eligible to be listed exemption
- 101.4.3 Applicable to New Construction - Remodel - Finish out - Addition
- 101.4.4 A Change in Occupancy or Use
- 101.4.5 A Change in space conditioning

### 401.2 New Construction and high rise residential will comply with 1 of the following;

- 401.2.(1A) ASHRAE 90.1
- 401.2.(2B) C402 ( Building Envelope), 403 (Mechanical), 404 (Water Heating) and 405(Lighting) and 1 of Additional Options in 406
  - 406.2(Improved HVAC),
  - 406.3 (Reduced LDP) or
  - 406.4(Onsite Renewable 1.75 Btu or .5watt/sqft or 3% energy saving of total building)
- 401.2.(3C) C407 (Performance Path), 402.4 (Air Leakage), 403.2 (HVAC Efficiency), 404 (Water Heating), 405.2 (Light Controls), 405.4 (Emergency Exits) 405.6 (Exterior Lighting) and 405.7 (Individual Metering To achieve 15% or better in efficiency.

### 401.2.1 Additions, alterations and repairs will comply with 1 of following;

- 401.2.1(1) C402 ( Building Envelope), 403 (Mechanical), 404 (Water Heating) and 405 (Lighting) and 1 of Additional Options in 406
  - 406.2(Improved HVAC),
  - 406.3 (Reduced LDP) or
  - 406.4(Onsite Renewable 1.75 Btu or .5watt/sqft or 3% energy saving of total building)
- 401.2.1(2) ASHRAE 90.1

### Additional Efficiency Package Options (Include at least 1 option)

- 406.2 More efficient HVAC performance
- 406.3 More efficient Lighting system
- 406.4 On-site Renewable Energy

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**Table 406.2(1) More Efficient HVAC system requirements - Zone 3**

<b>Air Cooled Air Conditioning</b>	<65000 Btu	Split system	15 SEER	12.5 EER
	≥ 65,000 Btu <240,000 Btu	Package system	15 SEER	12.0 EER
	≥240,000 Btu < 760,000Btu	Both systems	12 EER	12.54 IEER
	≥760,000Btu	Both systems	10.8 EER	11.3 IEER
<b>Heat Pump</b>	<65000 Btu	Split system	15 SEER	12.5 EER
	≥ 65,000 Btu <240,000 Btu	Package system	15 SEER	12.0 EER
<b>Gas Fire Furnace</b>	< 225,000 Btu		90AFUE	
	≥ 2250,000		90 E <sup>c</sup>	

**Table 405.2 Interior lighting Power requirements**

Automotive facility	0.9
Convention Center	1.2
Courthouse	1.2
Dining: Bar lounge/leisure	1.3
Dining: Cafeteria/fast food	1.4
Dining: Family	1.6
Dormitory	1.0
Exercise center	1.0
Fire Station	.8
Gymnasium	1.1
Heath Care clinic	1.1
Hospital	1.2
Library	1.3
Manufacturing facility	1.3
Hotel / Motel	1.0
Motion Picture theater	1.0
Multifamily	0.7
Museum	1.1
Office	0.9
Parking Garage	0.3
Penitentiary	1.0
Performing arts theater	1.6
Police Station	1.0
Post Office	1.1
Religious building	1.3
Retail	1.4
School / University	1.2
Sports arena	1.1
Town Hall	1.1
Transportation	1.0
Warehouse	0.60
Workshop	1.4

**Table 406.3 Reduced Interior lighting Power requirements**

Automotive facility	0.82
Convention Center	1.08
Courthouse	1.05
Dining: Bar lounge/leisure	0.99
Dining: Cafeteria/fast food	0.90
Dining: Family	0.89
Dormitory	0.61
Exercise center	0.88
Fire Station	0.71
Gymnasium	1.00
Heath Care clinic	0.87
Hospital	1.10
Library	1.18
Manufacturing facility	1.11
Hotel / Motel	0.88
Motion Picture theater	0.83
Multifamily	0.60
Museum	1.06
Office	0.85*
Performing arts theater	1.39
Police Station	0.96
Post Office	0.87
Religious building	1.05
Retail	1.3*
School / University	0.99
Sports arena	0.78
Town Hall	0.92
Transportation	0.77
Warehouse	0.60*
Workshop	1.2

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### 402.1 Building Envelope Insulation Inspections (Prescriptive)

402.2.1	Wood Residential	Metal Res	Metal & non Res
Roof Deck Insulation	R - 20 ci		R -19+ci 11
Ceiling Insulation	R - 38	<u>No drop ceiling insulation allowed</u>	

### 402.2.3

Above grade Wall Insulation **R - 13+ci 3.8 or R-20**      **R -13+ R7.5 ci or R -20**

### 402.2.6

Floor Insulation      **R - 30**

### 402.2.7

Opaque doors      < 50% glass      **U - .61**  
 Roll up doors      **R - 4.75**

### 402.3 Fenestration Inspections (Prescriptive)

Fixed Fenestration		<b>U - .46</b>	
Operable Fenestration		<b>U - .60</b>	
Entrance door		<b>U - .77</b>	
SHGC		<b>.25</b>	adjusted with multiplier
Projection Factor = Horizontal awning distance / Vertical glass height			
Orientation		<b>Within 45° of True North</b>	<b>All Others</b>
Results	<b>PF .2 ≤ .50</b>	<b>1.1</b>	<b>1.2</b>
	<b>PF ≥ .50</b>	<b>1.2</b>	<b>1.6</b>
Skylight	<b>3% max</b>	<b>U - .55</b>	<b>SHGC .35</b>

### 402.4. Air Leakage Inspections (Mandatory)

402.4.1 Continuous air barrier (inside or outside) unless meets the Building pressure test - Use specific materials list      Zones 1, 2 and 3 exempt

402.4.3 Air barrier penetrations (caulk, gaskets or tape)

- Wall top plate penetrations sealed on all walls
- Seal Bottom plate to foundation / vertical Wall intersections on exterior walls
- Seal around Windows & Doors & all Building envelope penetrations
- Seal or gasket Doors / Windows / Fixtures / Junction boxes for outlets & switches

402.4.6.1 Conditioned loading dock weather seals

402.4.7 Vestibule required for entry openings to > 3000 sqft area or revolving door  
 Zones 1 and 2 exempt

#### 402.4.1.2.3 Building Pressure Test

< .40 cfm / sqft @ 75 Pa      per ASTM 779      Zones 1, 2 and 3 exempt

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### 403.1 Mechanical Systems Inspections (Mandatory)

403.3 (Simple Systems)      403.4 (Complex Systems)

#### HVAC Simple Systems

403.2.1 Manual J provided according to ASHRAE/ACCA standard 183 \*

403.2.2 Equipment Sizing output capacity – for one of two function systems

403.2.3 Tables for minimum HVAC system efficiency requirements

403.2.4.3 Programmable Setback thermostat

403.2.5 Ventilation Requirements per Chapter 4 of IMC

403.2.7 HVAC Ducts                      R – 6 Unconditioned areas                      R – 8 Exterior

403.2.7.1 Duct sealed with mastic

403.2.8 Refrigerant line insulation according to size and  $\Delta T$

403.3 Air Economizer on cooling systems - Zone 1 Exempt

2B exempt if equipment is 10% more efficient

3B exempt if equipment is 15% more efficient

#### Water Heating Systems (Mandatory)

404.2 Performance efficiency    Electric .93 - .97 EF                      Gas .67 - 80% E

404.4 360 degree Heat trap installed                      or                      1" insulation for 1<sup>st</sup> 8 feet

404.5 Pipe Insulation 1" or R -2    Circulating systems - All Hot & Return pipe

404.7 Pool requirements

#### Interior Lighting (Mandatory)

405.2.1 Manual controls each room

405.2.1.2 50 % Light reduction controls

405.2.2.1 Automatic interior light shutoff controls with over ride unless has occupancy sensors

405.2.2.2 Occupant Sensor < 300 sqft - turns off within 30 minutes with manual on

405.2.2.3 Daylight zone controls  $\leq$  2500 sqft per zone

405.5.2(1) Interior lighting density tables                      Building Area / Space by Space

#### Exterior Lighting (Mandatory)

405.6.1 Luminaries > 100 W required to have minimum efficacy of 60 lumens / W

405.6.2 Individual Lighting Allowances for Exterior tables