Permit #
Permit Date

COM*check* Software Version 3.1 Release 1

Envelope Compliance Certificate

Standard 90.1-2001

Report Date: 05/29/07

Data filename: J:\- Office Warehouse\ECOHWY190 JOB 1840\BUILDOUT 5-15-07 JEN\comcheck.cck

Section 1: Project Information

Project Title: E.C.O. Builders

Construction Site:
Hwy 190 West suites 3 & 4
Slidell, LA 70458

Owner/Agent:
Elwin Ordoyne
E.C.O. Builders
P.O. Box
Slidell, LA 70458
985-645-9558

Designer/Contractor:
Emmett Dammon
Dammon Engineering
1095 Florida Ave
Slidell, LA 70458
985-649-5832

Section 2: General Information

Building Location (for weather data):	**Slidell, Louisiana**
Heating Degree Days (base 65 degrees F):	**1674**
Cooling Degree Days (base 50 degrees F):	**6660**
Building Type for Envelope Requirements:	**Non-Residential**
Project Type:	**New Construction**
Glazing Area Percentage:	**21%**

Building Type	Floor Area
Warehouse	2385

Section 3: Requirements Checklist

Envelope PASSES: Design 12% better than code.

Climate-Specific Requirements:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor
Roof 1: Metal Building, Standing Seam	2358	30.0	0.0	0.051	0.065
Exterior Wall 1: Metal Building Wall	2385	19.0	0.0	0.070	0.113
Door 1: Other, Swinging	72	---	---	2.000	0.700
Window 1: Metal Frame with Thermal Break, Double Pane, Tinted, Fixed, SHGC 0.10, PF 2.00	648	---	---	1.000	1.220
Floor 1: Slab-On-Grade:Unheated	2385	---	---	---	---

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

Insulation:

- ☐ 1. Open-blown or poured loose-fill insulation has not been used in attic roof spaces with ceiling slope greater than 3 in 12.
- ☐ 2. Wherever vents occur, they are baffled to deflect incoming air above the insulation.
- ☐ 3. Recessed lights, equipment and ducts are not affecting insulation thickness.
- ☐ 4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- ☐ 5. All exterior insulation is covered with protective material.

☐ 6. Cargo and loading dock doors are equipped with weather seals.

Fenestration and Doors:

☐ 7. Windows and skylights are labeled and certified by the manufacturer for U-factor and SHGC.
☐ 8. Fixed windows and skylights unlabeled by the manufacturer have been site labeled using the default U-factor and SHGC.
☐ 9. Other unlabeled vertical fenestration, operable and fixed, that are unlabeled by the manufacturer have been site labeled using the default U-factor and SHGC. No credit has been given for metal frames with thermal breaks, low-emissivity coatings, gas fillings, or insulating spacers.

Air Leakage and Component Certification:

☐ 10. All joints and penetrations are caulked, gasketed, weather-stripped, or otherwise sealed.
☐ 11. Windows, doors, and skylights certified as meeting leakage requirements.
☐ 12. Component R-values & U-factors labeled as certified.

Section 4: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the Standard 90.1-2001 requirements in COM*check* Version 3.1 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Envelope Designer-Name	Signature	Date
Emmett D Amuso		5-29-07

Permit #
Permit Date

COM*check* Software Version 3.1 Release 1

Lighting and Power Compliance Certificate

Standard 90.1-2001

Report Date: 05/29/07

Data filename: J:\- Office Warehouse\ECOHWY190 JOB 1840\BUILDOUT 5-15-07 JEN\comcheck.cck

Section 1: Project Information

Project Title: E.C.O. Builders

Construction Site:	Owner/Agent:	Designer/Contractor:
Hwy 190 West suites 3 & 4 Slidell, LA 70458	Elwin Ordoyne E.C.O. Builders P.O. Box Slidell, LA 70458 985-645-9558	Emmett Dammon Dammon Engineering 1095 Florida Ave Slidell, LA 70458 985-649-5832

Section 2: General Information

Building Use Description by:
Project Type: **New Construction**

Building Type	Floor Area
Warehouse	2385

Section 3: Requirements Checklist

Interior Lighting:

☐ 1. Total actual watts must be less than or equal to total allowed watts.

Allowed Watts	Actual Watts	Complies
2862	1620	YES ✓

Exterior Lighting:

☐ 2. Minimum efficacy of 60 lumen/watt for lamps greater than 100W.

☐ 3. Lighting power for canopies, entrances, and exits meets the following criteria (trade-offs allowed among these applications):
- (i) Lighting power for free-standing canopy areas or building entrances with canopies is less than or equal to 3 watts per square foot.
- (ii) Lighting power for building entrances without a canopy is less than or equal to 33 watts per linear foot of door width.
- (iii) Lighting power for building exits is less than or equal to 20 watts per linear foot of exit door width.

☐ 4. Lighting power for building facades is less than or equal to 0.25 watts per square foot of the illuminated area.

Exceptions:

Controlled by motion sensor, signal or advertising signage, highlighting features of historic monuments and buildings, or required for safety or security.

Controls, Switching, and Wiring:

☐ 5. Independent manual or occupancy sensing controls for each space (remote switch with indicator allowed for safety or security).

☐ 6. Automatic shutoff control for lighting in >5000 sq.ft buildings by time-of-day device, occupant sensor, or other automatic control.

Exceptions:

24 hour operation lighting.

- ☐ 7. Master switch at entry to hotel/motel guest room.
- ☐ 8. Separate control device for display/accent lighting, case lighting, task lighting, nonvisual lighting, lighting for sale, and demonstration lighting.
- ☐ 9. Photocell/astronomical time switch on exterior lights.
  Exceptions:
  Covered vehicle entrance/exit areas requiring lighting for safety, security and eye adaptation.
- ☐ 10. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).
  Exceptions:
  Electronic high-frequency ballasts;
  Luminaires not on same switch;
  Recessed luminaires 10 ft. apart or surface/pendant not continuous;
  Luminaires on emergency circuits.

Voltage Drop:

- ☐ 11. Feeder conductors have been designed for a maximum voltage drop of 2 percent.
- ☐ 12. Branch circuit conductors have been designed for a maximum voltage drop of 3 percent.

Section 4: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the Standard 90.1-2001 requirements in COM*check* Version 3.1 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Lighting Designer-Name	Signature	Date
Emmett D Hunn		5-29-07

Section 5: Post Construction Compliance Statement

Record Drawings and Operating and Maintenance Manuals

Construction documents with record drawings and operating and maintenance manuals provided to the owner.

Permit #
Permit Date

COM*check* Software Version 3.1 Release 1

Lighting Application Worksheet

Standard 90.1-2001

Report Date:

Data filename: J:\- Office Warehouse\ECOHWY190 JOB 1840\BUILDOUT 5-15-07 JEN\comcheck.cck

Section 1: Allowed Lighting Power Calculation

A	B Floor Area	C Allowed Watts / ft2	D Allowed Watts
Warehouse	2385	1.2	2862
		Total Allowed Watts =	2862

Section 2: Actual Lighting Power Calculation

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Linear Fluorescent 1: 48" T12 40W / Magnetic	4	18	40	720
HID 1: High-Pressure Sodium 200W / Magnetic	1	9	100	900
			Total Actual Watts =	1620

Section 3: Compliance Calculation

If the Total Allowed Watts minus the Total Actual Watts is greater than or equal to zero, the building complies.

Total Allowed Watts =	2862
Total Actual Watts =	1620
Project Compliance =	1242

Lighting PASSES: Design 43% better than code.

Permit #
Permit Date

COM*check* Software Version 3.1 Release 1

Mechanical Compliance Certificate

Standard 90.1-2001

Report Date: 05/29/07

Data filename: J:\- Office Warehouse\ECOHWY190 JOB 1840\BUILDOUT 5-15-07 JEN\comcheck.cck

Section 1: Project Information

Project Title: E.C.O. Builders

Construction Site:	Owner/Agent:	Designer/Contractor:
Hwy 190 West suites 3 & 4 Slidell, LA 70458	Elwin Ordoyne E.C.O. Builders P.O. Box Slidell, LA 70458 985-645-9558	Emmett Dammon Dammon Engineering 1095 Florida Ave Slidell, LA 70458 985-649-5832

Section 2: General Information

Building Location (for weather data):	**Slidell, Louisiana**
Heating Degree Days (base 65 degrees F):	**1674**
Cooling Degree Days (base 50 degrees F):	**6660**
Project Type:	**New Construction**

Section 3: Mechanical Systems List

Quantity	System Type & Description
2	HVAC System 1: Heating: Central Furnace, Electric, Heating Capacity <65 kBtu/h / Cooling: Split System, Capacity <65 kBtu/h, Air-Cooled Condenser / Single Zone

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- ☐ 1. Newly purchased equipment meets the efficiency requirements
- ☐ 2. Equipment minimum efficiency: Split System: 10.0 SEER

Generic Requirements: Must be met by all systems to which the requirement is applicable:

- ☐ 1. Load calculations per 1997 ASHRAE Fundamentals
- ☐ 2. Thermostatic controls has 5 degrees F deadband
  - Exception: Thermostats requiring manual changeover between heating and cooling
- ☐ 3. Hot water pipe insulation: 1 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in. Chilled water/refrigerant/brine pipe insulation: 1 in. for pipes <=1.5 in. and 1.5 in. for pipes >1.5 in. Steam pipe insulation: 1.5 in. for pipes <=1.5 in. and 3 in. for pipes >1.5 in.
  - Exception: Piping within HVAC equipment
  - Exception: Fluid temperatures between 55 and 105 degrees F
  - Exception: Fluid not heated or cooled
  - Exception: Runouts <4 ft in length
- ☐ 4. Where separate thermostats are used for heating and cooling, acceptable measures are used to prevent simultaneous heating and cooling
- ☐ 5. Stair and elevator shaft vents are equipped with motorized dampers
- ☐ 6. Acceptable measures used to prevent simultaneous humidification and dehumidification
  - Exception: Desiccant systems and systems for uses requiring specific humidity levels (approval required)
- ☐ 7. Automatic controls for freeze protection systems present

- ☐ 8. Automatic ventilation controls (e.g., CO2 controls) or exhaust air heat recovery present for high design occupancy areas (>100 person/1000 ft2) with >3,000 cfm outside air capacities
- ☐ 9. Duct, plenum, and piping insulation surfaces suitably protected from weather, moisture, or likely damage
- ☐ 10. R-6 supply and return air ducts in unconditioned spaces R-8 supply and return air ducts outside the building R-8 insulation between ducts and the building exterior when ducts are part of a building assembly R-3.5 supply and return air ducts insulation underground
- ☐ 11. Duct Sealing: Pressure sensitive tape is not used as the primary sealant Longitudinal and transverse seams for ducts in unconditioned spaces Longitudinal and transverse seams and duct wall penetrations for ducts outside the building Transverse seams on buried ducts
- ☐ 12. Humidistat controls prevent reheating, recooling, and mixing of mechanically heated air with mechanically cooled air
- ☐ 13. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
- ☐ 14. Kitchen hoods >5,000 cfm provided with 50% makeup air that is uncooled and heated to no more than 60 degrees F unless specifically exempted
- ☐ 15. Buildings with fume hood systems must have variable air volume hood design, exhaust heat recovery, or separate makeup air supply meeting the following: a) 75% make up air quantity, and /or b) within 2 degrees F of room temperature and/or c) no humidification d) no simultaneous heating and cooling

Section 5: Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the Standard 90.1-2001 requirements in COM*check* Version 3.1 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Mechanical Designer-Name	Signature	Date
Emmett Dammon		5-28-07

Section 6: Post Construction Compliance Statement

- ☐ HVAC record drawings of the actual installation and performance data for each equipment provided to the owner within 90 days after system acceptance.
- ☐ HVAC O&M documents for all mechanical equipment and system provided to the owner within 90 days after system acceptance.
- ☐ Written HVAC balancing report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name	Signature	Date

COM*check* Software Version 3.1 Release 1

Mechanical Requirements Description

Standard 90.1-2001

Report Date:

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The following list provides more detailed descriptions of the requirements in Section 4 of the Mechanical Compliance Certificate.

Requirements Specific To: HVAC System 1 :

1. The specified equipment is covered by Federal minimum efficiency requirements. New equipment of this type can be assumed to meet or exceed ASHRAE 90.1-2001 Standard requirements for equipment efficiency.
2. The specified heating and/or cooling equipment is covered by ASHRAE 90.1-2001 Standard and must meet the following minimum efficiency: Split System: 10.0 SEER

Generic Requirements: Must be met by all systems to which the requirement is applicable:

1. Design heating and cooling loads for the building must be determined using procedures equivalent to those in Chapters 27 and 28 of the ASHRAE Handbook of Fundamentals or an approved equivalent calculation procedure.
2. Thermostats controlling both heating and cooling must be capable of maintaining a 5 degrees 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.
3. All pipes serving space-conditioning systems must be insulated as follows: Hot water piping for heating systems: 1 in. for pipes <=1 1/2-in. nominal diameter 2 in. for pipes >1 1/2-in. nominal diameter. Chilled water, refrigerant, and brine piping systems: 1 in. insulation for pipes <=1 1/2-in. nominal diameter 1 1/2 in. insulation for pipes >1 1/2-in. nominal diameter. Steam piping: 1 1/2 in. insulation for pipes <=1 1/2-in. nominal diameter 3 in. insulation for pipes >1 1/2-in. nominal diameter.
   - Exception: Pipe insulation is not required for factory-installed piping within HVAC equipment.
   - Exception: Pipe insulation is not required for piping that conveys fluids having a design operating temperature range between 55 degrees F and 105 degrees F.
   - Exception: Pipe insulation is not required for piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
   - Exception: Pipe insulation is not required for runout piping not exceeding 4 ft in length and 1 in. in diameter between the control valve and HVAC coil.
4. Where zone heating and cooling are controlled by separate zone thermostats, means (such as limit switches, mechanical stops, or, for DDC systems, software programming) must be provided to prevent simultaneous heating and cooling to the zone.
5. 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. Exceptions: - Gravity (non-motorized) dampers are acceptable in buildings less than three stories in height above grade. - Ventilation systems serving unconditioned spaces.
6. Where a zone is served by a system(s) with both humidification and dehumidification capability, means (such as limit switches, mechanical stops, or software programming) must be provided to prevent simultaneous operation of humidification and dehumidification equipment.
   - Exception: Zones served by desiccant systems, used with direct evaporative cooling in series; Systems serving zones where specific humidity levels are required.
7. All freeze protection systems, including self-regulating heat tracing, must include automatic controls capable of shutting off the systems when outside air temperatures are above 40 degrees F or when the conditions of the protected fluid will prevent freezing. Snow- and ice-melting systems must include automatic controls capable of shutting off the systems when the pavement temperature is above 50 degrees F and no precipitation is falling, and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40 degrees F.
8. Systems with design outside air capacities >3,000 cfm serving areas having an average design occupancy density exceeding 100 people per 1000 ft2 must include means to automatically reduce outside air intake below design rates when spaces are partially occupied. Ventilation controls must be in compliance with ASHRAE Standard 62 and local standards.

9. Duct and pipe insulation exposed to weather must be suitable for outdoor service; e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.Insulation covering chilled water piping, refrigerant suction piping, or cooling ducts located outside the conditioned space must include a vapor retardant located outside the insulation (unless the insulation is inherently vapor retardant), all penetrations and joints of which must be sealed.
10. R-6 supply and return air ducts in unconditioned spaces R-8 supply and return air ducts outside the building R-8 insulation between ducts and the building exterior when ducts are part of a building assembly R-3.5 supply and return air ducts insulation underground
11. Duct Sealing Requirements: - Pressure sensitive tape prohibited as the primary sealant - Longitudinal and transverse seams for ducts in unconditioned spaces - Longitudinal and transverse seams and duct wall penetrations for ducts outside the building - Transverse seams on buried ducts
12. Where humidistatic controls are provided, such controls must prevent reheating, mixing of hot and cold air streams, or other means of simultaneous heating and cooling of the same air stream. Exceptions: - capability to first reduce flow rate - cooling capacity <80 kBtu/h and capability to unload cooling equipment - cooling capacity <40 kBtu/h - rigid humidity requirements - site-recovered or site-solar energy sources or - use of a desiccant systems.
13. Individual fan systems with a design supply air capacity of 5000 cfm or greater and minimum outside air supply of 70% or greater of the supply air capacity must have an energy recovery system with at least a 50% effectiveness. Exceptions: - Systems serving spaces that are not cooled and heated to <60 degrees F. - Commercial kitchen hoods (grease) classified as Type 1 by NFPA 96 - Systems exhausting toxic, flammable, paint, or corrosive fumes or dust If an air economizer is also required, heat recovery must be bypassed or controlled to permit air economizer operation.
14. Individual kitchen exhaust hoods larger than 5000 cfm must be provided with make-up air sized for at least 50% of exhaust air volume that is uncooled and either unheated or heated to no more than 60 degrees F Exceptions: - Where hoods are used to exhaust ventilation air that would otherwise exfiltrate or be exhausted by other fan systems. - Certified grease extractor hoods that require a face velocity no >60 fpm.
15. Buildings with fume hood systems having a total exhaust rate >15,000 cfm must either have variable air volume hood design, exhaust air heat recovery, or separate make up air supply meeting the following makeup air requirements: - at least 75% of exhaust flow rate - heated to no more than 2 degrees F below room setpoint temperature - cooled to no lower than 2 degrees F above room setpoint temperature - no humidification added - no simultaneous heating and cooling