COM*check* Software Version 3.5.3

Envelope Compliance Certificate

2006 IECC

Report Date: 06/01/08

Data filename: C:\One World Medicine - Energy compliance calc's.cck

Section 1: Project Information

Project Type: **New Construction**
Project Title : One World Medicine

Construction Site:
3100 S. Valley View Blvd.
Las Vegas, NV 89102

Owner/Agent:
MGA Architects
231 West Charleston Blvd., Suite 140
Las Vegas, NV 89102
(702) 362-8974

Designer/Contractor:
BORM
8329 West Sunset Rd.
Suite 260
Las Vegas, NV 89113
(702) 740-5427

Section 2: General Information

Building Location (for weather data):	**Las Vegas, Nevada**
Climate Zone:	**3b**
Heating Degree Days (base 65 degrees F):	**2652**
Cooling Degree Days (base 50 degrees F):	**6091**
Vertical Glazing / Wall Area Pct.:	**6%**

Activity Type(s)	Floor Area
Office	6586

Section 3: Requirements Checklist

Envelope PASSES: Design 1% 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
Orientation: NORTH					
Exterior Wall North: Wood-Framed, 16" o.c. Comments: Continious insulation is 1" stucco outside and 1/2" Gyp. board inside	805	15.0	0.3	0.081	0.089
Orientation: EAST					
Exterior Wall East: Wood-Framed, 16" o.c. Comments: Continious insulation is 1" stucco outside and 1/2" Gyp. board inside	1935	15.0	0.3	0.081	0.089
Window: Metal Frame:Double Pane, Tinted, SHGC 0.29 Comments: PPG SOLARBAN 60 (3) gray or Equal	72	---	---	0.280	0.650
Door: Glass, Entrance Door, SHGC 0.29 Comments: PPG SOLARBAN 60 (3) gray or Equal	84	---	---	0.280	0.900
Orientation: SOUTH					
Exterior Wall South: Wood-Framed, 16" o.c. Comments: Continious insulation is 1" stucco outside and 1/2" Gyp. board inside	805	15.0	0.3	0.081	0.089
Window: Metal Frame:Double Pane, Tinted, SHGC 0.29 Comments: PPG SOLARBAN 60 (3) gray or Equal	81	---	---	0.280	0.650
Orientation: WEST					
Exterior Wall West: Wood-Framed, 16" o.c. Comments: Continious insulation is 1" stucco outside and 1/2" Gyp. board inside	1935	15.0	0.3	0.081	0.089
Window: Metal Frame:Double Pane, Tinted, SHGC 0.29	96	---	---	0.280	0.650

Comments: PPG SOLARBAN 60 (3) gray or Equal					
Orientation: UNSPECIFIED ORIENTATION					
Roof 1: Attic Roof with Wood Joists	6586	30.0	0.4	0.033	0.034
Comments: Continious insulation is 1" plywood roof construction					
Floor 1: Slab-On-Grade:Unheated	6586	---	---	---	---

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

Air Leakage, Component Certification, and Vapor Retarder Requirements:

✸ 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.

✸ 2. Windows, doors, and skylights certified as meeting leakage requirements.

✸ 3. Component R-values & U-factors labeled as certified.

✸ 4. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.

✸ 5. No roof insulation is installed on a suspended ceiling with removable ceiling panels.

❑ 6. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.

❑ 7. Cargo doors and loading dock doors are weather sealed.

❑ 8. Recessed lighting fixtures are: (i) Type IC rated and sealed or gasketed; or (ii) installed inside an appropriate air-tight assembly with a 0.5 inch clearance from combustible materials and with 3 inches clearance from insulation material.

❑ 9. Building entrance doors have a vestibule and equipped with closing devices.
Exceptions:

Building entrances with revolving doors.

Doors that open directly from a space less than 3000 sq. ft. in area.

Note: Vapor retarder not required in this location.

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 2006 IECC requirements in COM*check* Version 3.5.3 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title	Signature	Date

- Exception: Ducts located within equipment
- Exception: Ducts with interior and exterior temperature difference not exceeding 15 degrees F.
- Exception: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches w.g. pressure classification

❑ 9. Mechanical fasteners and sealants used to connect ducts and air distribution equipment

❑ 10. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics

❑ 11. Operation and maintenance manual provided to building owner

❑ 12. Balancing devices provided in accordance with IMC 603.17

❑ 13. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings

- Exception: Gravity dampers acceptable in buildings <3 stories
- Exception: Gravity dampers acceptable in systems with outside or exhaust air flow rates less than 300 cfm where dampers are interlocked with fan

❑ 14. Stair and elevator shaft vents are equipped with motorized dampers

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 2006 IECC requirements in COM*check* Version 3.5.3 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title	Signature	Date

COM*check* Software Version 3.5.3

Mechanical Requirements Description

2006 IECC

Report Date:

Data filename: F:\ZK Design Group\Projects\2008\8031 - One World Medicine - AME\COMcheck (IECC)\Energy compliance calc's.cck

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 heating equipment is covered by Federal minimum efficiency requirements. New equipment of this type can be assumed to meet or exceed ASHRAE 90.1 Code requirements for equipment efficiency.
2. The specified heating and/or cooling equipment is covered by ASHRAE 90.1 Code and must meet the following minimum efficiency: Rooftop Package Unit: 9.7 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 in the ASHRAE Handbook of Fundamentals or an approved equivalent calculation procedure.
2. All equipment and systems must be sized to be 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.
   - 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.
   - 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 the units as the load increases or decreases.
3. Each heating or cooling system serving a single zone must have its own temperature control device.
4. Each humidification system must have its own humidity control device.
5. 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.
6. The system or zone control must be a programmable thermostat or other automatic control meeting the following criteria:a) capable of setting back temperature to 55 degrees F during heating and setting up to 85 degrees F during coolingb) capable of automatically setting back or shutting down systems during unoccupied hours using 7 different day schedulesc) have an accessible 2-hour occupant overrided) have a battery back-up capable of maintaining programmed settings for at least 10 hours without power.
   - Exception: A setback or shutoff control is not required on thermostats that control systems serving areas that operate continuously.
   - Exception: A setback or shutoff control is not required on systems with total energy demand of 2 kW (6,826 Btu/h) or less.
7. 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.
8. Air ducts must be insulated to the following levels:a) Supply and return air ducts 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 are located within exterior components (e.g., floors or roofs), minimum R-8 insulation is required only between the duct and the building exterior.
   - Exception: Duct insulation is not required on ducts located within equipment.
   - 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.
   - Exception: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches w.g. pressure classification.
9. Mechanical fasteners and seals, mastics, or gaskets must be used when connecting ducts to fans and other air distribution equipment, including multiple-zone terminal units.
10. All joints, longitudinal and transverse seams, and connections in ductwork must be securely sealed using weldments; 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 and shall be marked '181A-P' for pressure sensitive tape,'181A-M' for mastic or '181A-H' for heat-sensitive tape. Tapes and mastics used to seal flexible air ductsand flexible air connectors shall comply with UL 181B and shall be marked '181B-FX' for pressure-sensitive tape or'181B-M' for mastic. Unlisted duct tape is not permitted as a sealant on any metal ducts.

11. 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 actionsb) equipment operation and maintenance manualsc) 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 commentsd) complete narrative of how each system is intended to operate.
12. Replaced with 85
13. Outdoor air supply and exhaust systems must have motorized dampers that automatically shut when the systems or spaces served are not in use. Dampers must be capable of automatically shutting off during preoccupancy building warm-up, cool-down, and setback, except when ventilation reduces energy costs (e.g., night purge) or when ventilation must be supplied to meet code requirements. Both outdoor air supply and exhaust air dampers must have a maximum leakage rate of 3 cfm/ft2 at 1.0 in w.g. when tested in accordance with AMCA Standard 500.
    - Exception: Gravity (non-motorized) dampers are acceptable in buildings less than three stories in height.
    - Exception: Systems with a design outside air intake or exhaust capacity of 300 cfm (140 L/s) or less that are equipped with motor operated dampers that open and close when the unit is energized and de-energized, respectively.
14. 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.