



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 1

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **18%**

Activity Type(s) **Floor Area**
Multifamily 33304

Section 3: Requirements Checklist

Envelope PASSES: Design 0.1% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 593 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 540 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 408 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1584 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

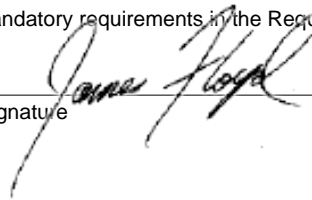
Section 4: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 1

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
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cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 30 | 26 | 780 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 3 | 15 | 45 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 75 | 39 | 2925 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 39 | 15 | 585 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 78 | 3510 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 45 | 35 | 1575 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 30 | 15 | 450 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 90 | 35 | 3150 |
| Compact Fluorescent 7: PENDANTS: Spiral 26W: Electronic: | 1 | 84 | 26 | 2184 |
| LED 3: HALL: LED PAR 20W: | 1 | 9 | 35 | 315 |
| LED 4: DESK: LED PAR 20W: | 1 | 6 | 35 | 210 |
| Total Proposed Watts = | | | 15729 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 33% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 15729 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

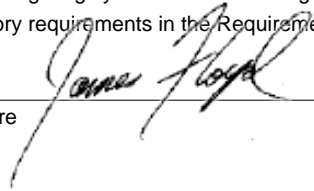
Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 1

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
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Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
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512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft ² | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 588 ft of walkway length | 0.7 | Yes | 412 | 1170 |
| Total Tradable Watts* = | | | | 1390 | 1586 |
| Total Allowed Watts = | | | | 1390 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (588 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1586 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

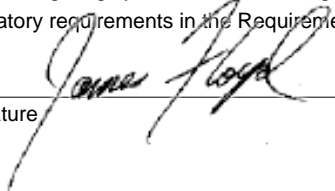
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 1

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 15 HVAC System 1 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 15 HVAC System 2 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 2

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
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Designer/Contractor:
Clair Wren Davis
Kelly Grossman
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Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **9%**

Activity Type(s) **Floor Area**
Multifamily 21662

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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 8436 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 455 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 5168 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 708 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 231 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 24 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 474 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 5168 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 246 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 231 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

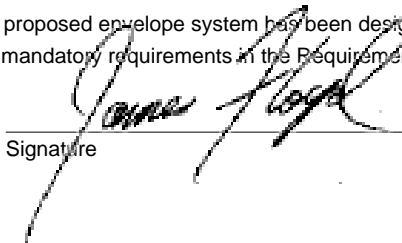
Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 2

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
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Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 21662 | 0.7 | 15163 |
| Total Allowed Watts = | | | 15163 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (21662 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 24 | 26 | 624 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 9 | 15 | 135 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 48 | 39 | 1872 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 24 | 15 | 360 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 1 | 24 | 26 | 624 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 24 | 35 | 840 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 24 | 15 | 360 |
| LED 2: KITCHEN: LED PAR 20W: | 3 | 72 | 35 | 2520 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 1 | 72 | 26 | 1872 |
| LED 3: HALL: LED PAR 20W: | 1 | 15 | 35 | 525 |
| Total Proposed Watts = | | | 9732 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 36% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 15163 | 9732 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

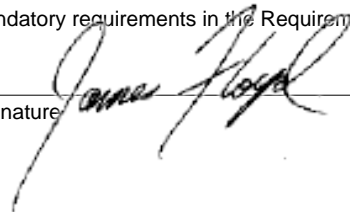
Section 5: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 2

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 570 ft ² | 1 | Yes | 570 | 312 |
| Walkway < 10 feet wide | 135 ft of walkway length | 0.7 | Yes | 95 | 858 |
| Total Tradable Watts* = | | | | 785 | 1274 |
| Total Allowed Watts = | | | | 785 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (570 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (135 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 33 | 26 | 858 |
| Total Tradable Proposed Watts = | | | | 1274 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

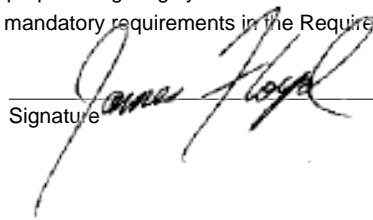
Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 2

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 24 HVAC System 1 (Single Zone) :
Heating: 24 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 24 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system
3. Minimum one humidity control device per installed humidification/dehumidification system
4. Load calculations per ASHRAE/ACCA Standard 183.
5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
- Continuously operating zones
6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly

Exception(s):

- Ducts located within equipment
- Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):

- Piping within HVAC equipment.
- Fluid temperatures between 55 and 105°F.
- Fluid not heated or cooled with renewable energy.
- Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
- Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband

Exception(s):

- Thermostats requiring manual changeover between heating and cooling
- Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft2 in spaces >500 ft2) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.

Exception(s):

- Systems with heat recovery.
- Multiple-zone systems without DDC of individual zones communicating with a central control panel.
- Systems with a design outdoor airflow less than 1200 cfm.
- Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings

Exception(s):

- Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted

Exception(s):

- Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
- Systems serving spaces that are heated and not cooled to less than 60°F.
- Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
- Heating systems in climates with less than 3600 HDD.
- Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
- Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
- Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

04-30-2015

Name - Title

Signature

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 3

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **17%**

Activity Type(s) **Floor Area**
Multifamily 31293

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 582 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6716 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1300 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 263 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 6717 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1712 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 264 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

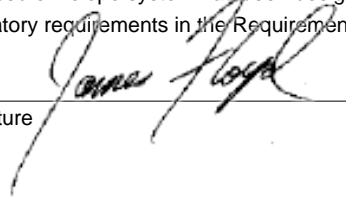
Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 3

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B x C) |
|-----------------------|---------------------------------------|---|-------------------------------|
| Multifamily | 31293 | 0.7 | 21905 |
| Total Allowed Watts = | | | 21905 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (31293 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Spiral 26W: Electronic: | 1 | 29 | 26 | 754 |
| Compact Fluorescent 3: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 60 | 39 | 2340 |
| Compact Fluorescent 4: CLOSET: Spiral 15W: Electronic: | 1 | 37 | 15 | 555 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 26 | 1170 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 53 | 35 | 1855 |
| LED 2: HALL: LED PAR 20W: | 1 | 17 | 35 | 595 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 29 | 15 | 435 |
| LED 3: KITCHEN: LED PAR 20W: | 3 | 87 | 35 | 3045 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 3 | 87 | 26 | 2262 |
| Compact Fluorescent 4 copy 1: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 12 | 15 | 180 |
| Total Proposed Watts = | | | 13191 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 40% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 21905 | 13191 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

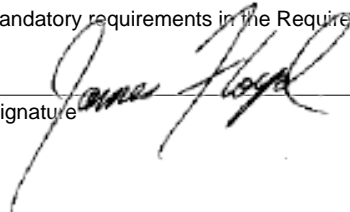
JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date





Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 3

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Illuminated area of facade wall or surface | 17470 ft2 | 0.1 | No | 1747 | 1500 |
| Stairway | 802 ft2 | 1 | Yes | 802 | 336 |
| Walkway < 10 feet wide | 197 ft of walkway length | 0.7 | Yes | 138 | 1170 |
| Total Tradable Watts* = | | | | 1060 | 1610 |
| Total Allowed Watts = | | | | 2807 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: B: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Illuminated area of facade wall or surface (17470 ft2): Non-tradable Wattage | | | | |
| Incandescent 1: Incandescent 150W: | 1 | 10 | 150 | 1500 |
| Stairway (802 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Triple 4-pin 21W: Electronic: | 1 | 16 | 21 | 336 |
| Walkway < 10 feet wide (197 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1610 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

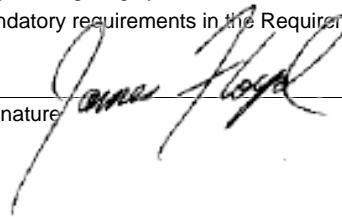
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 3

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 21 HVAC System 1 (Single Zone) :
Heating: 21 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 21 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 8 HVAC System 2 (Single Zone) :
Heating: 8 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 8 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

04-30-2015

Name - Title

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 4

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **18%**

Activity Type(s) **Floor Area**
Multifamily 33304

Section 3: Requirements Checklist

Envelope PASSES: Design 0.1% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 593 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 540 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 408 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1584 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

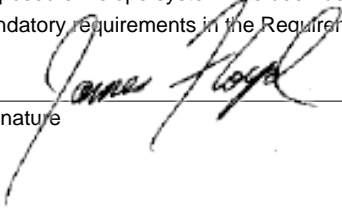
Section 4: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 4

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 30 | 26 | 780 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 3 | 15 | 45 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 75 | 39 | 2925 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 39 | 15 | 585 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 78 | 3510 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 45 | 35 | 1575 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 30 | 15 | 450 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 90 | 35 | 3150 |
| Compact Fluorescent 7: PENDANTS: Spiral 26W: Electronic: | 1 | 84 | 26 | 2184 |
| LED 3: HALL: LED PAR 20W: | 1 | 9 | 35 | 315 |
| LED 4: DESK: LED PAR 20W: | 1 | 6 | 35 | 210 |
| Total Proposed Watts = | | | 15729 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 33% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 15729 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

Date

04-30-2015



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 4

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft2 | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 588 ft of walkway length | 0.7 | Yes | 412 | 1170 |
| Total Tradable Watts* = | | | | 1390 | 1586 |
| Total Allowed Watts = | | | | 1390 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (588 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1586 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

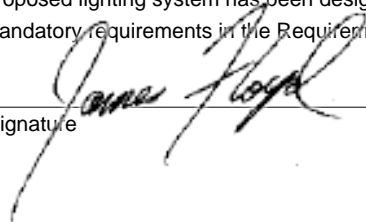
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 4

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 15 HVAC System 1 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 15 HVAC System 2 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

04-30-2015

Name - Title

Signature

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 5

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **18%**

Activity Type(s) **Floor Area**
Multifamily 33304

Section 3: Requirements Checklist

Envelope PASSES: Design 0.1% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 593 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 540 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 408 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1584 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

Date

04-30-2015

Name - Title



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 5

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 30 | 26 | 780 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 3 | 15 | 45 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 75 | 39 | 2925 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 39 | 15 | 585 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 78 | 3510 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 45 | 35 | 1575 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 30 | 15 | 450 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 90 | 35 | 3150 |
| Compact Fluorescent 7: PENDANTS: Spiral 26W: Electronic: | 1 | 84 | 26 | 2184 |
| LED 3: HALL: LED PAR 20W: | 1 | 9 | 35 | 315 |
| LED 4: DESK: LED PAR 20W: | 1 | 6 | 35 | 210 |
| Total Proposed Watts = | | | 15729 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 33% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 15729 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

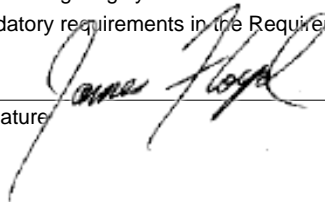
Section 5: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 5

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft ² | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 588 ft of walkway length | 0.7 | Yes | 412 | 1170 |
| Total Tradable Watts* = | | | | 1390 | 1586 |
| Total Allowed Watts = | | | | 1390 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (588 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1586 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

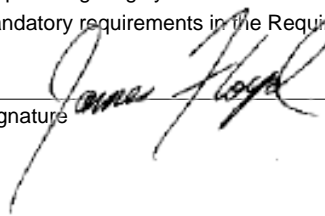
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 5

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 15 HVAC System 1 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 15 HVAC System 2 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 6

Construction Site:
SAN ANTONIO, TXOwner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.comDesigner/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **18%**

| <u>Activity Type(s)</u> | <u>Floor Area</u> |
|-------------------------|-------------------|
| Multifamily | 33304 |

Section 3: Requirements Checklist

Envelope PASSES: Design 0.1% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 593 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 540 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2926 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 408 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6878 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1584 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

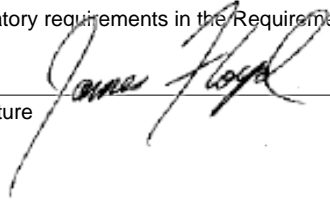
Section 4: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 6

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
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Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 30 | 26 | 780 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 3 | 15 | 45 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 75 | 39 | 2925 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 39 | 15 | 585 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 78 | 3510 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 45 | 35 | 1575 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 30 | 15 | 450 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 90 | 35 | 3150 |
| Compact Fluorescent 7: PENDANTS: Spiral 26W: Electronic: | 1 | 84 | 26 | 2184 |
| LED 3: HALL: LED PAR 20W: | 1 | 9 | 35 | 315 |
| LED 4: DESK: LED PAR 20W: | 1 | 6 | 35 | 210 |
| Total Proposed Watts = | | | 15729 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 33% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 15729 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: Compliance Statement

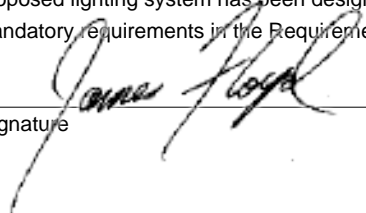
Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

Date



04-30-2015



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 6

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft ² | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 588 ft of walkway length | 0.7 | Yes | 412 | 1170 |
| Total Tradable Watts* = | | | | 1390 | 1586 |
| Total Allowed Watts = | | | | 1390 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (588 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1586 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

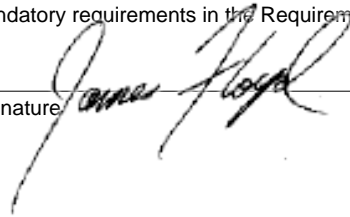
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015
Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 6

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 15 HVAC System 1 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 15 HVAC System 2 (Single Zone) :
Heating: 15 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 15 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 7

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **15%**

Activity Type(s) **Floor Area**
Multifamily 33304

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 11751 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 570 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6460 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 3306 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 612 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 63 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 3306 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 474 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 63 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6460 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 978 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

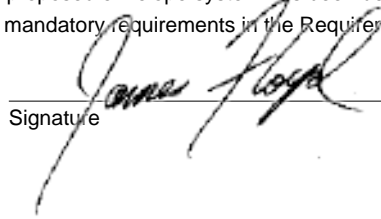
Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 7

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 23 | 26 | 598 |
| Compact Fluorescent 3: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 59 | 13 | 767 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 36 | 15 | 540 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 39 | 26 | 1014 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 47 | 35 | 1645 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 23 | 15 | 345 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 69 | 35 | 2415 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 1 | 69 | 26 | 1794 |
| LED 3: HALL: LED PAR 20W: | 1 | 8 | 35 | 280 |
| Total Proposed Watts = | | | 9398 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 60% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 9398 | YES |

Controls, Switching, and Wiring:

2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.

- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

04-30-2015

Name - Title

Signature

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 7

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft2 | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 570 ft of walkway length | 0.7 | Yes | 399 | 1092 |
| Total Tradable Watts* = | | | | 1377 | 1508 |
| Total Allowed Watts = | | | | 1377 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Spiral 26W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (570 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 42 | 26 | 1092 |
| Total Tradable Proposed Watts = | | | | 1508 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

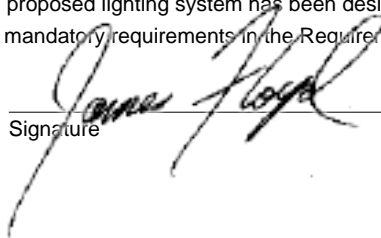
Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015
Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 7

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
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Designer/Contractor:
Clair Wren Davis
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Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 16 HVAC System 1 (Single Zone) :
Heating: 16 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 16 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 9 HVAC System 2 (Single Zone) :
Heating: 9 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 9 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

04-30-2015

Name - Title

Signature

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 8

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **15%**

Activity Type(s) **Floor Area**
Multifamily 33304

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 11751 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 570 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6460 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 948 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 3306 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 612 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 63 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 3306 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 474 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 63 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6460 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 978 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |

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

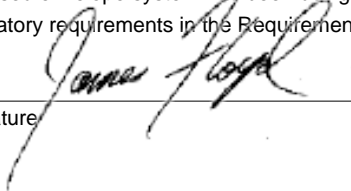
(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|-------------------|--|------------|
| JAMES FLOYD - MEP |  | 04-30-2015 |
| Name - Title | Signature | Date |



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 8

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 33304 | 0.7 | 23313 |
| Total Allowed Watts = | | | 23313 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (33304 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 23 | 26 | 598 |
| Compact Fluorescent 3: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 59 | 13 | 767 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 36 | 15 | 540 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 39 | 26 | 1014 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 47 | 35 | 1645 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 23 | 15 | 345 |
| LED 2: KITCHEN: LED PAR 20W: | 1 | 69 | 35 | 2415 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 1 | 69 | 26 | 1794 |
| LED 3: HALL: LED PAR 20W: | 1 | 8 | 35 | 280 |
| Total Proposed Watts = | | | 9398 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 60% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 23313 | 9398 | YES |

Controls, Switching, and Wiring:

2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.

- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 8

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 858 ft2 | 1 | Yes | 858 | 312 |
| Walkway < 10 feet wide | 570 ft of walkway length | 0.7 | Yes | 399 | 1092 |
| Total Tradable Watts* = | | | | 1377 | 1508 |
| Total Allowed Watts = | | | | 1377 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (858 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Spiral 26W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (570 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 42 | 26 | 1092 |
| Total Tradable Proposed Watts = | | | | 1508 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

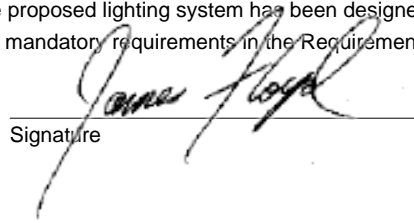
Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 8

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 16 HVAC System 1 (Single Zone) :
Heating: 16 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 16 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 9 HVAC System 2 (Single Zone) :
Heating: 9 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 9 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 9

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **17%**

Activity Type(s) **Floor Area**
Multifamily 31293

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 582 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6716 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1300 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 263 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 6717 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1712 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 264 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

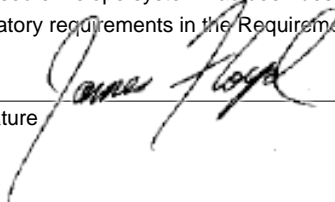
Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 9

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B x C) |
|-----------------------|---------------------------------------|---|-------------------------------|
| Multifamily | 31293 | 0.7 | 21905 |
| Total Allowed Watts = | | | 21905 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (31293 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Spiral 26W: Electronic: | 1 | 29 | 26 | 754 |
| Compact Fluorescent 3: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 60 | 39 | 2340 |
| Compact Fluorescent 4: CLOSET: Spiral 15W: Electronic: | 1 | 37 | 15 | 555 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 26 | 1170 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 53 | 35 | 1855 |
| LED 2: HALL: LED PAR 20W: | 1 | 17 | 35 | 595 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 29 | 15 | 435 |
| LED 3: KITCHEN: LED PAR 20W: | 3 | 87 | 35 | 3045 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 3 | 87 | 26 | 2262 |
| Compact Fluorescent 4 copy 1: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 12 | 15 | 180 |
| Total Proposed Watts = | | | 13191 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 40% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 21905 | 13191 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

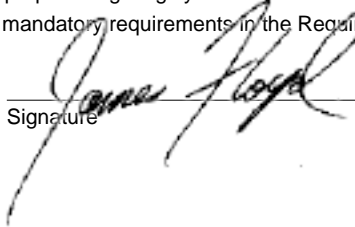
Section 5: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



Date

04-30-2015



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 9

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Illuminated area of facade wall or surface | 17470 ft2 | 0.1 | No | 1747 | 1500 |
| Stairway | 802 ft2 | 1 | Yes | 802 | 336 |
| Walkway < 10 feet wide | 197 ft of walkway length | 0.7 | Yes | 138 | 1170 |
| Total Tradable Watts* = | | | | 1060 | 1610 |
| Total Allowed Watts = | | | | 2807 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: B: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Illuminated area of facade wall or surface (17470 ft2): Non-tradable Wattage | | | | |
| Incandescent 1: Incandescent 150W: | 1 | 10 | 150 | 1500 |
| Stairway (802 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Triple 4-pin 21W: Electronic: | 1 | 16 | 21 | 336 |
| Walkway < 10 feet wide (197 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1610 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title



Signature

04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 9

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 21 HVAC System 1 (Single Zone) :
Heating: 21 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 21 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 8 HVAC System 2 (Single Zone) :
Heating: 8 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 8 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015
Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 10

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **14%**

Activity Type(s) **Floor Area**
Multifamily 30636

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 11649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 568 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6954 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 708 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 252 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 3040 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 510 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 3040 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 72 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 294 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 6954 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1446 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 21 | --- | --- | 0.500 | 0.700 |

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

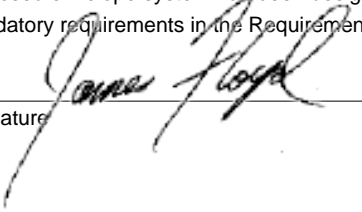
(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|--|---|---------------------------|
| <u>JAMES FLOYD - MEP</u> Name - Title |  Signature | <u>04-30-2015</u> Date |
|--|---|---------------------------|



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 10

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B x C) |
|-----------------------|---------------------------------------|---|-------------------------------|
| Multifamily | 30636 | 0.7 | 21445 |
| Total Allowed Watts = | | | 21445 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (30636 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Twin Tube 24/26/27W: Electronic: | 1 | 29 | 26 | 754 |
| Compact Fluorescent 2: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 3 | 15 | 45 |
| Compact Fluorescent 3: FAN LIGHTS: Twin Tube 13W: Electronic: | 3 | 66 | 39 | 2574 |
| Compact Fluorescent 4: CLOSETS: Spiral 15W: Electronic: | 1 | 37 | 15 | 555 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 1 | 45 | 26 | 1170 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 53 | 35 | 1855 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 29 | 15 | 435 |
| LED 2: HALL: LED PAR 20W: | 1 | 26 | 35 | 910 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 3 | 87 | 26 | 2262 |
| LED 3: KITCHEN: LED PAR 20W: | 3 | 87 | 35 | 3045 |
| Total Proposed Watts = | | | 13605 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 37% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 21445 | 13605 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 10

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Stairway | 570 ft2 | 1 | Yes | 570 | 312 |
| Walkway < 10 feet wide | 187 ft of walkway length | 0.7 | Yes | 131 | 756 |
| Total Tradable Watts* = | | | | 821 | 1172 |
| Total Allowed Watts = | | | | 821 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Stairway (570 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 24/26/27W: Electronic: | 1 | 12 | 26 | 312 |
| Walkway < 10 feet wide (187 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 18W: Electronic: | 1 | 42 | 18 | 756 |
| Total Tradable Proposed Watts = | | | | 1172 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

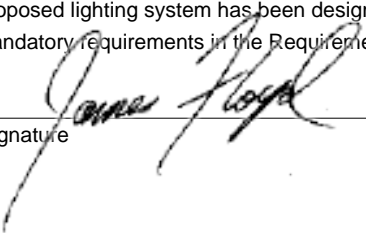
- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|-------------------|--|------------|
| JAMES FLOYD - MEP |  | 04-30-2015 |
| Name - Title | Signature | Date |



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 10

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 21 HVAC System 1 (Single Zone) :
Heating: 21 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 21 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 8 HVAC System 2 (Single Zone) :
Heating: 8 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 8 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP
Name - Title
Signature
Date 04-30-2015

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name
Signature
Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 11

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **17%**

Activity Type(s) **Floor Area**
Multifamily 31293

Section 3: Requirements Checklist

Envelope PASSES: Design 0.4% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 10649 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 582 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 6716 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1300 | --- | --- | 0.510 | 0.750 |
| Door 1: Insulated Metal, Swinging | 263 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 6717 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1712 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 264 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 3: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 2622 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 36 | --- | --- | 0.510 | 0.750 |
| Door 4: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |

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

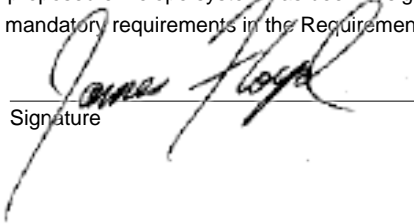
(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|-------------------|--|------------|
| JAMES FLOYD - MEP |  | 04-30-2015 |
| Name - Title | Signature | Date |



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 11

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B x C) |
|-----------------------|---------------------------------------|---|-------------------------------|
| Multifamily | 31293 | 0.7 | 21905 |
| Total Allowed Watts = | | | 21905 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (31293 sq.ft.) | | | | |
| Compact Fluorescent 1: PATIO: Spiral 26W: Electronic: | 1 | 29 | 26 | 754 |
| Compact Fluorescent 3: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 60 | 39 | 2340 |
| Compact Fluorescent 4: CLOSET: Spiral 15W: Electronic: | 1 | 37 | 15 | 555 |
| Compact Fluorescent 5: VANITY: Spiral 26W: Electronic: | 3 | 45 | 26 | 1170 |
| LED 1: BATH CEILING: LED PAR 20W: | 1 | 53 | 35 | 1855 |
| LED 2: HALL: LED PAR 20W: | 1 | 17 | 35 | 595 |
| Compact Fluorescent 6: UTILITY: Spiral 15W: Electronic: | 1 | 29 | 15 | 435 |
| LED 3: KITCHEN: LED PAR 20W: | 3 | 87 | 35 | 3045 |
| Compact Fluorescent 7: PENDANT: Spiral 26W: Electronic: | 3 | 87 | 26 | 2262 |
| Compact Fluorescent 4 copy 1: PATIO CLOSET: Spiral 15W: Electronic: | 1 | 12 | 15 | 180 |
| Total Proposed Watts = | | | 13191 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 40% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 21905 | 13191 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

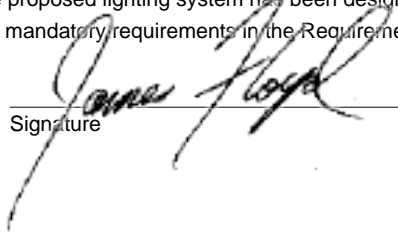
Section 5: Compliance Statement

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature



04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 11

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--|--------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 104 |
| Illuminated area of facade wall or surface | 17470 ft2 | 0.1 | No | 1747 | 1500 |
| Stairway | 802 ft2 | 1 | Yes | 802 | 336 |
| Walkway < 10 feet wide | 197 ft of walkway length | 0.7 | Yes | 138 | 1170 |
| Total Tradable Watts* = | | | | 1060 | 1610 |
| Total Allowed Watts = | | | | 2807 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: B: Twin Tube 24/26/27W: Electronic: | 1 | 4 | 26 | 104 |
| Illuminated area of facade wall or surface (17470 ft2): Non-tradable Wattage | | | | |
| Incandescent 1: Incandescent 150W: | 1 | 10 | 150 | 1500 |
| Stairway (802 ft2): Tradable Wattage | | | | |
| Compact Fluorescent 3: Triple 4-pin 21W: Electronic: | 1 | 16 | 21 | 336 |
| Walkway < 10 feet wide (197 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 4: Twin Tube 24/26/27W: Electronic: | 1 | 45 | 26 | 1170 |
| Total Tradable Proposed Watts = | | | | 1610 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

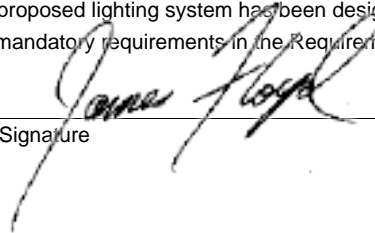
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

Date

Name - Title



04-30-2015



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 11

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 21 HVAC System 1 (Single Zone) :
Heating: 21 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 21 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None
- 8 HVAC System 2 (Single Zone) :
Heating: 8 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 8 each - Split System, Capacity = 24 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system

- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
 - Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

04-30-2015

Name - Title

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 12

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Residential**
Vertical Glazing / Wall Area Pct.: **20%**

Activity Type(s) **Floor Area**
Multifamily 16461

Section 3: Requirements Checklist

Envelope PASSES: Design 5% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 8996 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 579 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 3542 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 708 | --- | --- | 0.510 | 0.750 |
| Door 1: Wood, Swinging | 972 | --- | --- | 0.350 | 0.700 |
| Door 5: Insulated Metal, Swinging | 42 | --- | --- | 0.500 | 0.700 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 1342 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 60 | --- | --- | 0.510 | 0.750 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 1342 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 60 | --- | --- | 0.510 | 0.750 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 3542 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (b) | 1116 | --- | --- | 0.510 | 0.750 |

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

(b) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

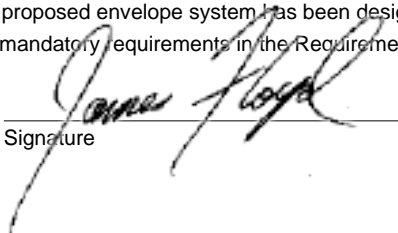
JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date





COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 12

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Multifamily | 16461 | 0.7 | 11523 |
| Total Allowed Watts = | | | 11523 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Multifamily (16461 sq.ft.) | | | | |
| LED 1: ENTRY: LED PAR 20W: | 1 | 6 | 35 | 210 |
| LED 2: POWDER ROOM: LED PAR 20W: | 1 | 18 | 35 | 630 |
| Compact Fluorescent 1: VANITY: Spiral 26W: Electronic: | 3 | 24 | 78 | 1872 |
| Compact Fluorescent 2: UTILITY: Spiral 15W: Electronic: | 1 | 6 | 15 | 90 |
| LED 3: HALL: LED PAR 20W: | 1 | 30 | 35 | 1050 |
| LED 4: KITCHEN: LED PAR 20W: | 1 | 18 | 35 | 630 |
| Compact Fluorescent 3: PENDANT: Spiral 26W: Electronic: | 1 | 18 | 26 | 468 |
| Compact Fluorescent 4: PATIO: Spiral 26W: Electronic: | 1 | 12 | 26 | 312 |
| Compact Fluorescent 5: GARAGE: Spiral 15W: Electronic: | 1 | 12 | 15 | 180 |
| Compact Fluorescent 6: FAN LIGHTS: Spiral 13W: Electronic: | 3 | 4 | 39 | 156 |
| Compact Fluorescent 7: RECESSED CANS: Spiral 15W: Electronic: | 1 | 36 | 15 | 540 |
| Compact Fluorescent 8: CLOSETS: Spiral 15W: Electronic: | 1 | 18 | 15 | 270 |
| Total Proposed Watts = | | | 6408 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 44% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 11523 | 6408 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.
- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.
- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.
- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.
- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.
- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 12

Exterior Lighting Zone: **2 (Residentially zoned area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|-------------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 18 ft of door width | 20 | Yes | 360 | 78 |
| Walkway < 10 feet wide | 21 ft of walkway length | 0.7 | Yes | 15 | 156 |
| Total Tradable Watts* = | | | | 375 | 234 |
| Total Allowed Watts = | | | | 375 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|------------------------|-----------------------|-----------------------|--------------|
| Main entry (18 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 2: Spiral 26W: Electronic: | 1 | 3 | 26 | 78 |
| Walkway < 10 feet wide (21 ft of walkway length): Tradable Wattage | | | | |
| Compact Fluorescent 1: Spiral 26W: Electronic: | 1 | 6 | 26 | 156 |
| Total Tradable Proposed Watts = | | | | 234 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.
Compliance: Passes.

Controls, Switching, and Wiring:

2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.

- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|--|---|---|
| JAMES FLOYD - MEP <hr style="border: 0; border-top: 1px solid black;"/> |  <hr style="border: 0; border-top: 1px solid black;"/> | 04-30-2015 <hr style="border: 0; border-top: 1px solid black;"/> |
| Name - Title | Signature | Date |



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS-BUILDING # 12

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 12 HVAC System 1 (Single Zone) :
Heating: 12 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 12 each - Split System, Capacity = 18 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 12.50 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

1. Equipment minimum efficiency: Split System: 12.10 EER

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system
3. Minimum one humidity control device per installed humidification/dehumidification system
4. Load calculations per ASHRAE/ACCA Standard 183.
5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
- Continuously operating zones
6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly

Exception(s):

- Ducts located within equipment
- Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):

- Piping within HVAC equipment.
- Fluid temperatures between 55 and 105°F.
- Fluid not heated or cooled with renewable energy.
- Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
- Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.

Exception(s):

- Systems with heat recovery.
- Multiple-zone systems without DDC of individual zones communicating with a central control panel.
- Systems with a design outdoor airflow less than 1200 cfm.
- Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
 - Gravity dampers acceptable in buildings <3 stories
- 16. Automatic controls for freeze protection systems present
- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
 - Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

Date

04-30-2015

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Nonresidential**
Vertical Glazing / Wall Area Pct.: **17%**

Activity Type(s) **Floor Area**
Office 8251

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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 8251 | 0.0 | 30.0 | 0.032 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 479 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 2167 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 479 | --- | --- | 0.510 | 0.750 |
| Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.29, PF 0.65 (c) | 42 | --- | --- | 0.350 | 1.100 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 1975 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 64 | --- | --- | 0.510 | 0.750 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 1947 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 416 | --- | --- | 0.510 | 0.750 |
| Door 2: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.30, PF 0.65 (c) | 48 | --- | --- | 0.510 | 1.100 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 1725 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 252 | --- | --- | 0.510 | 0.750 |

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) 'Other' components require supporting documentation for proposed U-factors.
- (c) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

Date

04-30-2015

Name - Title



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B x C) |
|-----------------------|---------------------------------------|---|-------------------------------|
| Office | 8251 | 1 | 8251 |
| Total Allowed Watts = | | | 8251 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Office (8251 sq.ft.) | | | | |
| Compact Fluorescent 1: A: Triple 4-pin 21W: Electronic: | 1 | 55 | 24 | 1320 |
| Track lighting 1: D: Wattage based on 4 feet of track | 0 | 0 | 120 | 120 |
| Compact Fluorescent 2: E: Triple 4-pin 32W: Electronic: | 1 | 4 | 32 | 128 |
| LED 1: F: LED Panel 40W: | 1 | 1 | 40 | 40 |
| Compact Fluorescent 3: G: Twin Tube 36/39W: Electronic: | 1 | 4 | 40 | 160 |
| Incandescent 1: H: Incandescent 60W: | 3 | 4 | 180 | 720 |
| Linear Fluorescent 1: J: 48" T8 32W: Electronic: | 4 | 9 | 148 | 1332 |
| Linear Fluorescent 2: K: 48" T8 32W: Electronic: | 2 | 1 | 88 | 88 |
| LED 2: L: LED Linear 20W: | 2 | 10 | 60 | 600 |
| Incandescent 2: M: Incandescent 60W: | 6 | 1 | 360 | 360 |
| Compact Fluorescent 4: N: Twin Tube 7W: Electronic: | 1 | 6 | 10 | 60 |
| Incandescent 3: P: Incandescent 60W: | 1 | 2 | 60 | 120 |
| Incandescent 4: R: Incandescent 60W: | 5 | 1 | 300 | 300 |
| Incandescent 5: U: Incandescent 60W: | 1 | 2 | 60 | 120 |
| Total Proposed Watts = | | | 5468 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 34% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 8251 | 5468 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

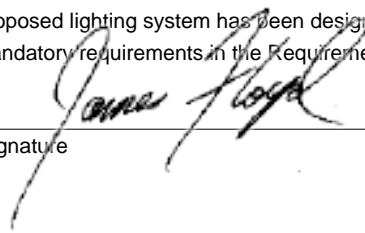
Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Exterior Lighting Zone: **2 (Residential mixed use area)**

Construction Site:

SAN ANTONIO, TX

Owner/Agent:

Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:

Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|---------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 120 |
| Entry canopy | 256 ft ² | 0.25 | Yes | 64 | 112 |
| Other door (not main entry) | 6 ft of door width | 20 | Yes | 120 | 14 |
| Other door (not main entry) | 6 ft of door width | 20 | Yes | 120 | 228 |
| Total Tradable Watts* = | | | | 424 | 474 |
| Total Allowed Watts = | | | | 424 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 1: C: Twin Tube 13W: Electronic: | 1 | 8 | 15 | 120 |
| Entry canopy (256 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 2: B: Twin Tube 13W: Electronic: | 1 | 8 | 14 | 112 |
| Other door (not main entry) (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 13W: Electronic: | 1 | 1 | 14 | 14 |
| Other door (not main entry) (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 4: B: Twin Tube 13W: Electronic: | 1 | 12 | 14 | 168 |
| Compact Fluorescent 5: C: Twin Tube 13W: Electronic: | 1 | 4 | 15 | 60 |
| Total Tradable Proposed Watts = | | | | 474 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

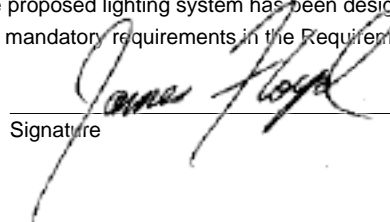
Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 HVAC System 1 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 30 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 2 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 30 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 3 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 10 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 60 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 4 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 36 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 5 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies

Cooling: 1 each - Split System, Capacity = 48 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 3 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 4 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 5 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system
- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.

Exception(s):

- Systems with heat recovery.
- Multiple-zone systems without DDC of individual zones communicating with a central control panel.
- Systems with a design outdoor airflow less than 1200 cfm.
- Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.

- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings

Exception(s):

- Gravity dampers acceptable in buildings <3 stories

- 16. Automatic controls for freeze protection systems present

- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted

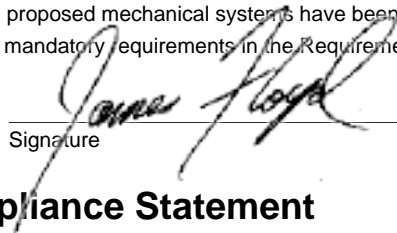
Exception(s):

- Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
- Systems serving spaces that are heated and not cooled to less than 60°F.
- Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
- Heating systems in climates with less than 3600 HDD.
- Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
- Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
- Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Nonresidential**
Vertical Glazing / Wall Area Pct.: **17%**

Activity Type(s) **Floor Area**
Office 8251

Section 3: Requirements Checklist

Envelope PASSES: Design 3% 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 ^(a) |
|---|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 8251 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 479 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 2167 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 479 | --- | --- | 0.510 | 0.750 |
| Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.29, PF 0.65 (c) | 42 | --- | --- | 0.350 | 1.100 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 1975 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 64 | --- | --- | 0.510 | 0.750 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 1947 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 3: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 416 | --- | --- | 0.510 | 0.750 |
| Door 2: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.30, PF 0.65 (c) | 48 | --- | --- | 0.510 | 1.100 |
| Exterior Wall 4: Wood-Framed, 16" o.c. | 1725 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 4: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30, PF 0.65 (c) | 252 | --- | --- | 0.510 | 0.750 |

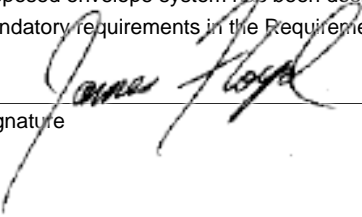
- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) 'Other' components require supporting documentation for proposed U-factors.
- (c) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|--|---|-------------------------------------|
| <p>JAMES FLOYD - MEP</p> <hr/> <p>Name - Title</p> |  <hr/> <p>Signature</p> | <p>04-30-2015</p> <hr/> <p>Date</p> |
|--|---|-------------------------------------|



COMcheck Software Version 3.9.4

Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Office | 8251 | 1 | 8251 |
| Total Allowed Watts = | | | 8251 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Office (8251 sq.ft.) | | | | |
| Compact Fluorescent 1: A: Triple 4-pin 21W: Electronic: | 1 | 55 | 24 | 1320 |
| Track lighting 1: D: Wattage based on 4 feet of track | 0 | 0 | 120 | 120 |
| Compact Fluorescent 2: E: Triple 4-pin 32W: Electronic: | 1 | 4 | 32 | 128 |
| LED 1: F: LED Panel 40W: | 1 | 1 | 40 | 40 |
| Compact Fluorescent 3: G: Twin Tube 36/39W: Electronic: | 1 | 4 | 40 | 160 |
| Incandescent 1: H: Incandescent 60W: | 3 | 4 | 180 | 720 |
| Linear Fluorescent 1: J: 48" T8 32W: Electronic: | 4 | 9 | 148 | 1332 |
| Linear Fluorescent 2: K: 48" T8 32W: Electronic: | 2 | 1 | 88 | 88 |
| LED 2: L: LED Linear 20W: | 2 | 10 | 60 | 600 |
| Incandescent 2: M: Incandescent 60W: | 6 | 1 | 360 | 360 |
| Compact Fluorescent 4: N: Twin Tube 7W: Electronic: | 1 | 6 | 10 | 60 |
| Incandescent 3: P: Incandescent 60W: | 1 | 2 | 60 | 120 |
| Incandescent 4: R: Incandescent 60W: | 5 | 1 | 300 | 300 |
| Incandescent 5: U: Incandescent 60W: | 1 | 2 | 60 | 120 |
| Total Proposed Watts = | | | 5468 | |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 34% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 8251 | 5468 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.

- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.

- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.

- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Signature

04-30-2015

Date

Name - Title



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Exterior Lighting Zone: **2 (Residential mixed use area)**

Construction Site:

SAN ANTONIO, TX

Owner/Agent:

Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:

Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|--------------------------------------|---------------------|---------------------------------|--------------------------|----------------------------------|------------------------|
| Main entry | 6 ft of door width | 20 | Yes | 120 | 120 |
| Entry canopy | 256 ft ² | 0.25 | Yes | 64 | 112 |
| Other door (not main entry) | 6 ft of door width | 20 | Yes | 120 | 14 |
| Other door (not main entry) | 6 ft of door width | 20 | Yes | 120 | 228 |
| Total Tradable Watts* = | | | | 424 | 474 |
| Total Allowed Watts = | | | | 424 | |
| Total Allowed Supplemental Watts** = | | | | 600 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|------------------------|-----------------------|-----------------------|--------------|
| Main entry (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 1: C: Twin Tube 13W: Electronic: | 1 | 8 | 15 | 120 |
| Entry canopy (256 ft ²): Tradable Wattage | | | | |
| Compact Fluorescent 2: B: Twin Tube 13W: Electronic: | 1 | 8 | 14 | 112 |
| Other door (not main entry) (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 3: Twin Tube 13W: Electronic: | 1 | 1 | 14 | 14 |
| Other door (not main entry) (6 ft of door width): Tradable Wattage | | | | |
| Compact Fluorescent 4: B: Twin Tube 13W: Electronic: | 1 | 12 | 14 | 168 |
| Compact Fluorescent 5: C: Twin Tube 13W: Electronic: | 1 | 4 | 15 | 60 |
| Total Tradable Proposed Watts = | | | | 474 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
- 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

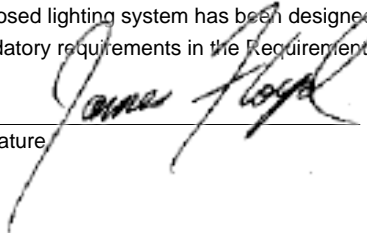
- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title



Signature

04-30-2015

Date



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Clubhouse

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 HVAC System 1 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 30 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 2 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 6 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 30 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 3 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 10 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 60 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 4 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 36 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None
- 1 HVAC System 5 (Single Zone) :
Heating: 1 each - Unit Heater, Electric, Capacity = 8 kBtu/h
No minimum efficiency requirement applies

Cooling: 1 each - Split System, Capacity = 48 kBtu/h, Evaporatively Cooled Condenser, No Economizer ,
Economizer exception: None
Proposed Efficiency = 14.00 EER, Required Efficiency = 12.10 EER
Fan System: None

Section 4: Requirements Checklist

Requirements Specific To: HVAC System 1 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 2 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 3 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 4 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

Requirements Specific To: HVAC System 5 :

- 1. Equipment minimum efficiency: Split System: 12.10 EER

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

- 1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
 - Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
- 2. Minimum one temperature control device per system
- 3. Minimum one humidity control device per installed humidification/dehumidification system
- 4. Load calculations per ASHRAE/ACCA Standard 183.
- 5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
 - Continuously operating zones
- 6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
- 7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
 - Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
- 8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
- 9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
- 10. Hot water pipe insulation: 1.5 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
 - Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
- 11. Operation and maintenance manual provided to building owner
- 12. Thermostatic controls have 5°F deadband
Exception(s):
 - Thermostats requiring manual changeover between heating and cooling
 - Special occupancy or special applications where wide temperature ranges are not acceptable and are approved by the authority having jurisdiction.
- 13. Balancing devices provided in accordance with IMC 603.17
- 14. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.

Exception(s):

- Systems with heat recovery.
- Multiple-zone systems without DDC of individual zones communicating with a central control panel.
- Systems with a design outdoor airflow less than 1200 cfm.
- Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.

- 15. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings

Exception(s):

- Gravity dampers acceptable in buildings <3 stories

- 16. Automatic controls for freeze protection systems present

- 17. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted

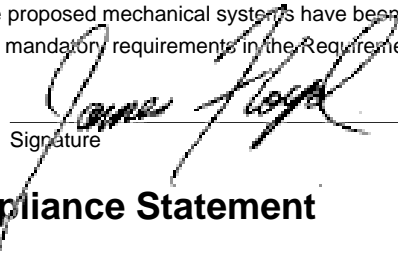
Exception(s):

- Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
- Systems serving spaces that are heated and not cooled to less than 60°F.
- Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
- Heating systems in climates with less than 3600 HDD.
- Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
- Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
- Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
 - a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Nonresidential**
Vertical Glazing / Wall Area Pct.: **11%**

| <u>Activity Type(s)</u> | <u>Floor Area</u> |
|-------------------------|-------------------|
| Office | 918 |

Section 3: Requirements Checklist

Envelope PASSES: Design 6% 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 ^(a) |
|--|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 918 | 0.0 | 30.0 | 0.032 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 130 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 308 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (c) | 72 | --- | --- | 0.510 | 0.750 |
| Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.30 (c) | 24 | --- | --- | 0.510 | 1.100 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 286 | 13.0 | 0.0 | 0.089 | 0.089 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 308 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (c) | 36 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.350 | 0.700 |
| Door 3: Other Door, Non-Swinging | 80 | --- | --- | 0.460 | 1.450 |
| Exterior Wall 2 copy 1: Wood-Framed, 16" o.c. | 286 | 13.0 | 0.0 | 0.089 | 0.089 |

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) 'Other' components require supporting documentation for proposed U-factors.
- (c) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

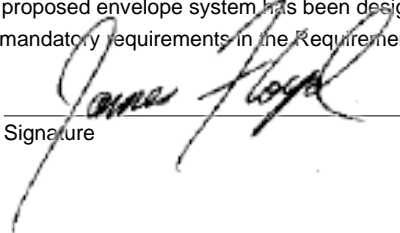
Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP



04-30-2015

Name - Title

Signature

Date



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Office | 918 | 1 | 918 |
| Total Allowed Watts = | | | 918 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Office (918 sq.ft.) | | | | |
| Linear Fluorescent 1: 48" T8 32W: Electronic: | 2 | 5 | 84 | 420 |
| Linear Fluorescent 2: 48" T8 32W (Super T8): Electronic: | 2 | 1 | 84 | 84 |
| Compact Fluorescent 1: Twin Tube 24/26/27W: Electronic: | 1 | 3 | 24 | 72 |
| Total Proposed Watts = | | | | 576 |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 37% better than code.

Lighting Wattage:

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

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 918 | 576 | YES |

Controls, Switching, and Wiring:

2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

- 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.
- 5. Master switch at entry to hotel/motel guest room.
- 6. Individual dwelling units separately metered.
- 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.
- 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.
- 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.
- 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Exterior Lighting Zone: **2 (Residential mixed use area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|----------------------------|--------------------|---------------------------------|--------------------------|--------------------------------------|------------------------|
| Main entry | 3 ft of door width | 20 | Yes | 60 | 24 |
| | | | | Total Tradable Watts* = | 60 |
| | | | | Total Allowed Watts = | 60 |
| | | | | Total Allowed Supplemental Watts** = | 600 |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) | |
|---|------------------------|-----------------------|-----------------------|---------------------------------|----|
| Main entry (3 ft of door width): Tradable Wattage | | | | | |
| Compact Fluorescent 1: Twin Tube 24/26/27W: Electronic: | 1 | 1 | 24 | 24 | |
| | | | | Total Tradable Proposed Watts = | 24 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.
Compliance: Passes.

Controls, Switching, and Wiring:

2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.

- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

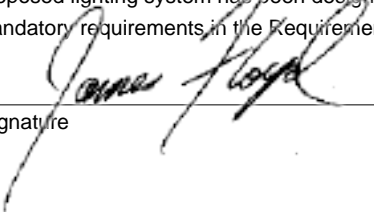
- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|-----------------------|--|---------------|
| JAMES FLOYD - MEP |  | 04-30-2015 |
| _____ Name - Title | _____ Signature | _____ Date |



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 Maintenance (Single Zone) : Split System Heat Pump
Heating Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 9 kBtu/h,
Proposed Efficiency = 21.50 SEER, Required Efficiency = 13.00 SEER
Fan System: None
- 1 Dog Wash (Single Zone) : Split System Heat Pump
Heating Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 9 kBtu/h,
Proposed Efficiency = 21.50 SEER, Required Efficiency = 13.00 SEER
Fan System: None
- 1 Water Heater 1:
Electric Storage Water Heater, Capacity: 10 gallons
No minimum efficiency requirement applies

Section 4: Requirements Checklist

Requirements Specific To: Maintenance :

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

Requirements Specific To: Dog Wash :

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

Requirements Specific To: Water Heater 1 :

- 1. Water heating equipment meets minimum efficiency requirements: No efficiency requirements for water heater with storage capacity less than 20 gallons.
- 2. First 8 ft of outlet piping is insulated
- 3. Hot water storage temperature controls that allow setpoint of 90°F for non-dwelling units and 110°F for dwelling units.

4. Heat traps provided on inlet and outlet of storage tanks

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system
3. Minimum one humidity control device per installed humidification/dehumidification system
4. Load calculations per ASHRAE/ACCA Standard 183.
5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
- Continuously operating zones
6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
- Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
- Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
11. Operation and maintenance manual provided to building owner
12. Balancing devices provided in accordance with IMC 603.17
13. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
- Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
14. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
- Gravity dampers acceptable in buildings <3 stories
15. Automatic controls for freeze protection systems present
16. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
- Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



Envelope Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**
Building Space Conditioning Type(s): **Nonresidential**
Vertical Glazing / Wall Area Pct.: **11%**

| <u>Activity Type(s)</u> | <u>Floor Area</u> |
|-------------------------|-------------------|
| Office | 918 |

Section 3: Requirements Checklist

Envelope PASSES: Design 7% 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 ^(a) |
|--|-------------------------|----------------|---------------|-------------------|--------------------------------|
| Roof 1: Attic Roof with Wood Joists | 918 | 0.0 | 38.0 | 0.025 | 0.027 |
| Floor 1: Slab-On-Grade:Unheated | 130 | --- | --- | --- | --- |
| Exterior Wall 1: Wood-Framed, 16" o.c. | 308 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 1: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (c) | 72 | --- | --- | 0.510 | 0.750 |
| Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Other testing/cert. Product ID: Pending, SHGC 0.30 (c) | 24 | --- | --- | 0.510 | 1.100 |
| Exterior Wall 2: Wood-Framed, 16" o.c. | 286 | 13.0 | 0.0 | 0.089 | 0.089 |
| Exterior Wall 3: Wood-Framed, 16" o.c. | 308 | 13.0 | 0.0 | 0.089 | 0.089 |
| Window 2: Metal Frame, Perf. Type: Other testing/cert. Product ID: PENDING, SHGC 0.30 (c) | 36 | --- | --- | 0.510 | 0.750 |
| Door 2: Insulated Metal, Swinging | 21 | --- | --- | 0.350 | 0.700 |
| Door 3: Other Door, Non-Swinging | 80 | --- | --- | 0.460 | 1.450 |
| Exterior Wall 2 copy 1: Wood-Framed, 16" o.c. | 286 | 13.0 | 0.0 | 0.089 | 0.089 |

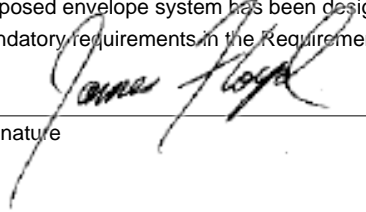
- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) 'Other' components require supporting documentation for proposed U-factors.
- (c) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

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. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- 5. 'Other' components have supporting documentation for proposed U-Factors.
- 6. 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.
- 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- 8. Cargo doors and loading dock doors are weather sealed.
- 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|--|--|-----------------------------|
| JAMES FLOYD - MEP _____ Name - Title |  _____ Signature | 04-30-2015 _____ Date |
|--|--|-----------------------------|



Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Interior Lighting and Power Calculation

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts (B x C) |
|-----------------------|--------------------------|-----------------------------|-------------------------------|
| Office | 918 | 1 | 918 |
| Total Allowed Watts = | | | 918 |

Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|------------------------|-----------------------|-----------------------|--------------|
| Office (918 sq.ft.) | | | | |
| Linear Fluorescent 1: 48" T8 32W: Electronic: | 2 | 5 | 84 | 420 |
| Linear Fluorescent 2: 48" T8 32W (Super T8): Electronic: | 2 | 1 | 84 | 84 |
| Compact Fluorescent 1: Twin Tube 24/26/27W: Electronic: | 1 | 3 | 24 | 72 |
| Total Proposed Watts = | | | | 576 |

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 37% better than code.

Lighting Wattage:

- 1. Total proposed watts must be less than or equal to total allowed watts.

| Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 918 | 576 | YES |

Controls, Switching, and Wiring:

- 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
- 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

- Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
- Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

- Areas designated as security or emergency areas that must be continuously illuminated.
- Lighting in stairways or corridors that are elements of the means of egress.
5. Master switch at entry to hotel/motel guest room.
6. Individual dwelling units separately metered.
7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

- Only one luminaire in space.
- An occupant-sensing device controls the area.
- The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
- Areas that use less than 0.6 Watts/sq.ft.
9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

- Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.
10. Photocell/astronomical time switch on exterior lights.

Exceptions:

- Lighting intended for 24 hour use.
11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

- Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

JAMES FLOYD - MEP
Name - Title

Signature

04-30-2015
Date



Exterior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Exterior Lighting Zone: **2 (Residential mixed use area)**

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
mac@odenhughesllc.com

Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|----------------------------|--------------------|---------------------------------|--------------------------|--------------------------------------|------------------------|
| Main entry | 3 ft of door width | 20 | Yes | 60 | 24 |
| | | | | Total Tradable Watts* = | 60 |
| | | | | Total Allowed Watts = | 60 |
| | | | | Total Allowed Supplemental Watts** = | 600 |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) | |
|---|------------------------|-----------------------|-----------------------|---------------------------------|----|
| Main entry (3 ft of door width): Tradable Wattage | | | | | |
| Compact Fluorescent 1: Twin Tube 24/26/27W: Electronic: | 1 | 1 | 24 | 24 | |
| | | | | Total Tradable Proposed Watts = | 24 |

Section 4: Requirements Checklist

Lighting Wattage:

1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.
Compliance: Passes.

Controls, Switching, and Wiring:

2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.

- 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exterior Lighting Efficacy:

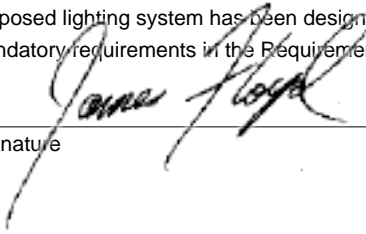
- 6. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

Exceptions:

- Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
- Lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation.
- Emergency lighting that is automatically off during normal building operation.
- Lighting that is controlled by motion sensor.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior 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 2009 IECC requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

| | | |
|-----------------------|--|---------------|
| JAMES FLOYD - MEP |  | 04-30-2015 |
| _____ Name - Title | _____ Signature | _____ Date |



Mechanical Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: **New Construction**

Project Title : AGORA PALMS APARTMENTS- Maintenance

Construction Site:
SAN ANTONIO, TX

Owner/Agent:
Mac McElwrath
Oden Hughes, LLC
901 S. Mopac Expressway
BOP V, Suite 200
Austin, TX 78746
512-391-4497
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Designer/Contractor:
Clair Wren Davis
Kelly Grossman
260 Addie Roy Rd.
Suite 210
Austin, TX 78746
512-327-3397
cdavis@kellygrossmanarchitects.com

Section 2: General Information

Building Location (for weather data): **San Antonio, Texas**
Climate Zone: **2a**

Section 3: Mechanical Systems List

Quantity System Type & Description

- 1 Maintenance (Single Zone) : Split System Heat Pump
Heating Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 9 kBtu/h,
Proposed Efficiency = 21.50 SEER, Required Efficiency = 13.00 SEER
Fan System: None
- 1 Dog Wash (Single Zone) : Split System Heat Pump
Heating Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 9 kBtu/h,
Proposed Efficiency = 21.50 SEER, Required Efficiency = 13.00 SEER
Fan System: None
- 1 Water Heater 1:
Electric Storage Water Heater, Capacity: 10 gallons
No minimum efficiency requirement applies

Section 4: Requirements Checklist

Requirements Specific To: Maintenance :

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

Requirements Specific To: Dog Wash :

- 1. Equipment minimum efficiency: Heat Pump: 7.70 HSPF 13.00 SEER

Requirements Specific To: Water Heater 1 :

- 1. Water heating equipment meets minimum efficiency requirements: No efficiency requirements for water heater with storage capacity less than 20 gallons.
- 2. First 8 ft of outlet piping is insulated
- 3. Hot water storage temperature controls that allow setpoint of 90°F for non-dwelling units and 110°F for dwelling units.

4. Heat traps provided on inlet and outlet of storage tanks

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

1. Plant equipment and system capacity no greater than needed to meet loads
Exception(s):
- Standby equipment automatically off when primary system is operating
 - Multiple units controlled to sequence operation as a function of load
2. Minimum one temperature control device per system
3. Minimum one humidity control device per installed humidification/dehumidification system
4. Load calculations per ASHRAE/ACCA Standard 183.
5. Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
Exception(s):
- Continuously operating zones
6. Outside-air source for ventilation; system capable of reducing OSA to required minimum
7. R-5 supply and return air duct insulation in unconditioned spaces
R-8 supply and return air duct insulation outside the building
R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
Exception(s):
- Ducts located within equipment
 - Ducts with interior and exterior temperature difference not exceeding 15°F.
8. Mechanical fasteners and sealants used to connect ducts and air distribution equipment
9. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts; UL 181A or 181B tapes and mastics
10. Hot water pipe insulation: 1.5 in. for pipes ≤1.5 in. and 2 in. for pipes >1.5 in.
Chilled water/refrigerant/brine pipe insulation: 1.5 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(s):
- Piping within HVAC equipment.
 - Fluid temperatures between 55 and 105°F.
 - Fluid not heated or cooled with renewable energy.
 - Piping within room fan-coil (with AHRI440 rating) and unit ventilators (with AHRI840 rating).
 - Runouts <4 ft in length.
11. Operation and maintenance manual provided to building owner
12. Balancing devices provided in accordance with IMC 603.17
13. Demand control ventilation (DCV) present for high design occupancy areas (>40 person/1000 ft² in spaces >500 ft²) and served by systems with any one of 1) an air-side economizer, 2) automatic modulating control of the outdoor air damper, or 3) a design outdoor airflow greater than 3000 cfm.
Exception(s):
- Systems with heat recovery.
 - Multiple-zone systems without DDC of individual zones communicating with a central control panel.
 - Systems with a design outdoor airflow less than 1200 cfm.
 - Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
14. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
Exception(s):
- Gravity dampers acceptable in buildings <3 stories
15. Automatic controls for freeze protection systems present
16. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
Exception(s):
- Hazardous exhaust systems, commercial kitchen and clothes dryer exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems.
 - Systems serving spaces that are heated and not cooled to less than 60°F.
 - Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.
 - Heating systems in climates with less than 3600 HDD.
 - Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F.
 - Systems requiring dehumidification that employ energy recovery in series with the cooling coil.
 - Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent or less of design values or, a separate make up air supply meeting the following makeup air requirements:
a) at least 75 percent of exhaust flow rate, b) heated to no more than 2°F below room setpoint temperature, c) cooled to no lower than 3°F above room setpoint temperature, d) no humidification added, e) no simultaneous heating and cooling.

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JAMES FLOYD - MEP

Name - Title

Signature

04-30-2015

Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation, system capacities, calibration information, and performance data for each equipment provided to the owner.
- HVAC O&M documents for all mechanical equipment and system provided to the owner by the mechanical contractor.
- Written HVAC balancing and operations report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date