



Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Circle K 22130 Angier NC (BG 29894)
 Project Type: New Construction



Construction Site:
 9706 Kennebec Church Road
 Angier, North Carolina

Owner/Agent:

Designer/Contractor:
 Jason C. Adams P.E.
 1805 N 2nd Street
 Rogers, Arkansas 72756
 479-636-5004
 JCA@teamofchoice.com

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Reduced Lighting Power, 1.0 credit

Allowed Interior Lighting Power

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts |
|---|---------------------------------------|---|-----------------------|
| 1-Men's Restroom (Common Space Types:Restrooms) | 133 | 0.77 | 102 |
| 2-Women's Restroom (Common Space Types:Restrooms) | 134 | 0.77 | 103 |
| 3-Back Room (Common Space Types:Storage >=50 - <=1000 sq.ft.) | 296 | 0.41 | 121 |
| 4-Hallway (Common Space Types:Corridor/Transition <8 ft wide) | 57 | 0.59 | 34 |
| 5-Sales Floor (Retail:Sales Area) | 2282 | 1.10 | 2510 |
| Total Allowed Watts = | | | 2871 |

Proposed Interior Lighting Power

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixture | D Fixture Watt. | E (C X D) |
|--|------------------------|----------------------|-----------------------|--------------|
| <u>1-Men's Restroom (Common Space Types:Restrooms)</u> LED: B: 6" LED Recessed Downlight: LED Other Fixture Unit 25W: | 1 | 6 | 21 | 126 |
| <u>2-Women's Restroom (Common Space Types:Restrooms)</u> LED: B: 6" LED Recessed Downlight: LED Other Fixture Unit 25W: | 1 | 6 | 21 | 126 |
| <u>3-Back Room (Common Space Types:Storage >=50 - <=1000 sq.ft.)</u> LED: A, AE: 2x4 LED Troffer: LED Panel 41W: | 1 | 4 | 41 | 164 |
| <u>4-Hallway (Common Space Types:Corridor/Transition <8 ft wide)</u> LED: A, AE: 2x4 LED Troffer: LED Panel 41W: | 1 | 1 | 41 | 41 |
| <u>5-Sales Floor (Retail:Sales Area)</u> LED: A, AE: 2x4 LED Troffer: LED Panel 41W: | 1 | 29 | 41 | 1189 |
| LED: C, CE: 2x2 LED Troffer: LED Panel 33W: | 1 | 12 | 33 | 396 |
| LED: B: 6" LED Recessed Downlight: LED Other Fixture Unit 25W: | 1 | 3 | 21 | 63 |
| LED: J: 8' LED Linear fixture: LED Other Fixture Unit 90W: | 1 | 2 | 92 | 184 |
| Total Proposed Watts = | | | | 2289 |

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jason C. Adams P.E.

Name - Title

Signature

12/28/23

Date



Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Circle K 22130 Angier NC (BG 29894)
 Project Type: New Construction
 Exterior Lighting Zone 2 (Neighborhood business district (LZ2))



Jan 04, 2024

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Allowed Exterior Lighting Power

| A Area/Surface Category | B Quantity | C Allowed Watts / | D Tradable Wattage | E Allowed Watts (B X C) |
|---|---------------|----------------------|-----------------------|----------------------------|
| fuel sales canopy (Free standing/attached sales canopy) | 4605 ft2 | 0.4 | Yes | 1842 |
| Drive/Parking (Driveway) | 54310 ft2 | 0.04 | Yes | 2172 |
| Dining area | 886 ft2 | 0.65 | Yes | 576 |
| Walkway < 10 feet wide | 253 ft of | 0.5 | Yes | 126 |
| Walkway >= 10 feet wide | 1053 ft2 | 0.1 | Yes | 105 |
| Entry canopy | 130 ft2 | 0.25 | Yes | 32 |
| Total Tradable Watts (a) = | | | | 4855 |
| Total Allowed Watts = | | | | 4855 |
| Total Allowed Supplemental Watts (b) = | | | | 400 |

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixture | D Fixture Watt. | E (C X D) |
|--|------------------------|----------------------|-----------------------|--------------|
| <u>fuel sales canopy (Free standing/attached sales canopy, 4605 ft2): Tradable Wattage</u> | | | | |
| LED: CAN: LED Canopy Light: LED Panel 80W: | 1 | 28 | 86 | 2408 |
| <u>Drive/Parking (Driveway, 54310 ft2): Tradable Wattage</u> | | | | |
| LED: A2, A3, A4, A4B: Single Pole fixture: LED Roadway-Parking Unit 94W: | 1 | 16 | 97 | 1552 |
| LED: A4-2: Two head Pole Light: LED Roadway-Parking Unit 220W: | 2 | 1 | 194 | 194 |
| <u>Dining area (886 ft2): Tradable Wattage</u> | | | | |
| LED: WP4: Wall pack: LED Other Fixture Unit 46W: | 1 | 2 | 71 | 142 |
| <u>Walkway < 10 feet wide (253 ft of walkway length): Tradable Wattage</u> | | | | |
| LED: WP3: Wall pack: LED Other Fixture Unit 6.5W: | 1 | 3 | 47 | 141 |
| <u>Walkway >= 10 feet wide (1053 ft2): Tradable Wattage</u> | | | | |
| LED: WP4: Wall pack: LED Other Fixture Unit 80W: | 1 | 2 | 71 | 142 |



Inspection Checklist

Energy Code: 2018 IECC

Requirements: 6.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|---------------------------|---|--|--------------------------|
| C103.2 [PR4] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C103.2 [PR8] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C406 [PR9] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

| | | | | | |
|---|----------------------|---|------------------------|---|---------------------|
| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|----------------------|---|------------------------|---|---------------------|

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|--|--|----------------------|
| C405.2.2.2 [EL22] ¹ | Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern ≥ 50 percent. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.1, C405.2.1.1 [EL18] ¹ | Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces ≤ 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.1.2 [EL19] ¹ | Occupancy sensors control function in warehouses: In warehouses, the lighting in aiseways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.1.3 [EL20] ¹ | Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces ≥ 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas ≤ 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by $\geq 80\%$ of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.2, C405.2.2.1, C405.2.2.2 [EL21] ² | Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|--|--|--|---|
| C405.2.3, C405.2.3.1, C405.2.3.2 [EL23] ² | Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.4 [EL26] ¹ | Separate lighting control devices for specific uses installed per approved lighting plans. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.4 [EL27] ¹ | Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.5 [EL28] ^{null} | Manual controls required by the energy code are in a location with ready access to occupants and located where the controlled lights are visible, or identify the area served and their status. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.6 [EL30] ^{null} | Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.3 [EL6] ¹ | Exit signs do not exceed 5 watts per face. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.6 [EL26] ² | Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| C405.7 [EL27] ² | Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist). | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| C405.8.2, C405.8.2.1 [EL28] ² | Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| C405.9 [EL29] ² | Total voltage drop across the combination of feeders and branch circuits <= 5%. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

| | | | | | |
|---|----------------------|---|------------------------|---|---------------------|
| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|----------------------|---|------------------------|---|---------------------|

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|--|---|--|--|
| C303.3, C408.2.5.2 [FI17] ³ | Furnished O&M instructions for systems and equipment to the building owner or designated representative. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.4.1 [FI18] ¹ | Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Interior Lighting fixture schedule for values. |
| C405.5.1 [FI19] ¹ | Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Exterior Lighting fixture schedule for values. |
| C408.1.1 [FI57] ¹ | Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| C408.2.5.1 [FI16] ³ | Furnished as-built drawings for electric power systems within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.3 [FI33] ¹ | Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

| | | | | | |
|---|----------------------|---|------------------------|---|---------------------|
| 1 | High Impact (Tier 1) | 2 | Medium Impact (Tier 2) | 3 | Low Impact (Tier 3) |
|---|----------------------|---|------------------------|---|---------------------|