# COMcheck Software Version 4.1.5.5 Interior Lighting Compliance Certificate

#### **Project Information**

Energy Code: Project Title: Project Type:

Construction Site: 333 West Ave 81502 2018 IECC City of GJ New Recycling Building New Construction

> Owner/Agent: Jerod Timothy City of Grand Junction 250 N. 5th St. Grand Junction, CO 81501 970-244-1565 jerodt@gjcity.org

Designer/Contractor: Joel Martinez ACM Consulting and Engineering PO 3211 Grand Junction, CO 81502 970-245-7292 joelm@ACMengrs.com

#### Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed

Enhanced Interior Lighting Controls, 1.0 credit

#### Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft	Allo 2	D wed Watts (B X C)
1-Warehouse Storage:Medium/Bulky/Pallet Material	6000	0.35		2100
	То	tal Allowed W	/atts =	2100
Proposed Interior Lighting Power				
A	В	С	D	E
Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	Lamps/ Fixture	# of Fixtures	Fixture Watt.	(C X D)
1-Warehouse Storage:Medium/Bulky/Pallet Material				
LED 1: Other:	1	6	300	1800
		Total Propos	sed Watts =	1800

## Interior Lighting PASSES: Design 14% better than code

#### **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 COM*check* Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

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# COMcheck Software Version 4.1.5.5 Exterior Lighting Compliance Certificate

#### **Project Information**

Energy Code: Project Title: Project Type: Exterior Lighting Zone 2018 IECC City of GJ New Recycling Building New Construction 2 (Light industrial area with limited nighttime use (LZ2))

Construction Site: 333 West Ave 81502

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Owner/Agent: Jerod Timothy City of Grand Junction 250 N. 5th St. Grand Junction, CO 81501 970-244-1565 jerodt@gjcity.org Designer/Contractor: Joel Martinez ACM Consulting and Engineering PO 3211 Grand Junction, CO 81502 970-245-7292 joelm@ACMengrs.com

## Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Door Entrance/Exit (Pedestrian and vehicular entrances and exits)	66 ft of door	14	Yes	924
		Total Tradat	ble Watts (a) =	924
		Total All	owed Watts =	924
	Total All	owed Supplemen	tal 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 Fixtures	D Fixture Watt.	E (C X D)
or Entrance/Exit ( Pedestrian and vehicular entrances and exits 66 ft of door wid	th): Tradable W	/attage		
ED 1: LED Other Fixture Unit 28W:	1	2	82	165
	Total Tra	dable Propos	sed Watts =	165

## Exterior Lighting PASSES: Design 88% better than code

#### **Exterior Lighting 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 exterior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

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# COMcheck Software Version 4.1.5.5 Inspection Checklist

Energy Code: 2018 IECC

Requirements: 30.0% 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] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C103.2 [PR8] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C406 [PR9] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. Location on plans/spec: Specifications for type A and Type B

Additional Comments/Assumptions:

1 High Impact (Tier 1)

2 Medium Impact (Tier 2)

Section # & Reg.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2. 2 [EL22] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.1, C405.2.1. 1 [EL18] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.1. 2 [EL19] <sup>1</sup>	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways 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.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.1. 3 [EL20] <sup>1</sup>	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 >= 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 only when occupancy for the same area is detected.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.2, C405.2.2. 1, C405.2.2. 2 [EL21] <sup>2</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	

1 High Impact (Tier 1)

2 Medium Impact (Tier 2)

Section # & Reg.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3. 1, C405.2.3. 2 [EL23] <sup>2</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.4 [EL26] <sup>1</sup>	Separate lighting control devices for specific uses installed per approved lighting plans.	Complies Does Not Not Observable	
C405.2.4 [EL27] <sup>1</sup>	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	Complies Does Not Not Observable Not Applicable	
C405.2.5 [EL28] <sup>null</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.6 [EL30] <sup>null</sup>	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%.	□Complies □Does Not □Not Observable □Not Applicable	
C405.3 [EL6] <sup>1</sup>	Exit signs do not exceed 5 watts per face.	□Complies □Does Not □Not Observable □Not Applicable	
C405.6 [EL26] <sup>2</sup>	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	□Complies □Does Not □Not Observable □Not Applicable	Exception: Requirement does not apply.
C405.7 [EL27] <sup>2</sup>	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).	□Complies □Does Not □Not Observable □Not Applicable	<b>Exception:</b> Requirement does not apply.
C405.8.2, C405.8.2. 1 [EL28] <sup>2</sup>	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.	└─Complies └─Does Not └─Not Observable └─Not Applicable	<b>Exception:</b> Requirement does not apply.
C405.9 [EL29] <sup>2</sup>	Total voltage drop across the combination of feeders and branch circuits <= 5%.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.

#### Additional Comments/Assumptions:

1 High Impact (Tier 1)

2 Medium Impact (Tier 2)

 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] <sup>3</sup>	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	□Complies □Does Not □Not Observable □Not Applicable	
C405.4.1 [FI18] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	See the Interior Lighting fixture schedule for values.
C405.5.1 [FI19] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	See the Exterior Lighting fixture schedule for values.
C406.4 [FI54] <sup>1</sup>	Enhanced digital lighting controls efficiency package: Interior lighting has following enhanced lighting controls in accordance with Section C405.2.2: Luminaires capable of continuous dimming and being addressed individually, <= 8 luminaires controlled in combination in a daylight zone, digital control system for fixtures, "Sequence of Operations" documentation, and functional testing per Section C408.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met. <b>Location on plans/spec:</b> E5
C408.1.1 [FI57] <sup>1</sup>	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.	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
C408.2.5. 1 [FI16] <sup>3</sup>	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	□Complies □Does Not □Not Observable □Not Applicable	
C408.3 [FI33] <sup>1</sup>	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	□Complies □Does Not □Not Observable □Not Applicable	

Additional Comments/Assumptions:

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