COMcheck Software Version 4.0.7.0

Envelope Compliance Certificate

Project Information

Energy Code:	90.1 (2010) Standard
Project Title:	Werner Electric Office/Warehouse
Location:	La Crosse, Wisconsin
Climate Zone:	6a
Project Type:	New Construction
Vertical Glazing / Wall Area:	6%

Construction Site:
3120 Berlin Dr.
La Crosse, WI 54601

Owner/Agent:
Brad Windjue
Werner Electric
1338 N Hastings Way
Eau Claire, WI 54703
715-855-0587
bwindjue@wernerelec.com

Designer/Contractor:
Brian Pinnow
Wieser Brothers Contractors
200 Twilite St.
La Crescent, MN 55947
507-895-8903
brianp@wieserbrothers.com

Building Area	Floor Area
1-OFFICE/WAREHOUSE (Warehouse) : Semiheated	23400

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Roof 1: Metal Building, Standing Seam, Single Insulation Layer with Thermal Blocks (d), [Bldg. Use 1 - OFFICE/WAREHOUSE]	23400	10.0	10.0	0.049	0.072
Floor 1: Slab-On-Grade:Unheated, Vertical 4 ft., [Bldg. Use 1 - OFFICE/WAREHOUSE] (b)	628	---	10.0	0.480	0.480
NORTH					
Exterior Wall 1: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	178	20.0	0.0	0.076	0.151
Door 6: Insulated Metal, Non-Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	108	---	---	0.250	1.450
Exterior Wall 1 copy 1: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	1053	20.0	0.0	0.076	0.151
Door 8: Uninsulated Single-Layer Metal, Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	24	---	---	0.500	0.700
Exterior Wall 1 copy 2: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	726	20.0	0.0	0.076	0.151
Window 1: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, PF 0.33, [Bldg. Use 1 - OFFICE/WAREHOUSE]	162	---	---	0.900	0.600
Window 1 copy 2: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	72	---	---	0.900	0.600

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Window 1 copy 11: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.82, PF 0.33, [Bldg. Use 1 - OFFICE/WAREHOUSE]	49	---	---	1.250	0.900
Exterior Wall 8: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - OFFICE/WAREHOUSE]	1963	16.0	0.0	0.093	0.113
Door 7: Insulated Metal, Non-Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	60	---	---	0.250	1.450
Exterior Wall 11: Steel-Framed, 16" o.c., [Bldg. Use 1 - OFFICE/WAREHOUSE]	744	20.0	0.0	0.107	0.124
EAST					
Exterior Wall 1 copy 6: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	1220	20.0	0.0	0.076	0.151
Exterior Wall 8 copy 2: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - OFFICE/WAREHOUSE]	1774	16.0	0.0	0.093	0.113
Window 1 copy 10: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
SOUTH					
Exterior Wall 1 copy 4: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	985	20.0	0.0	0.076	0.151
Window 1 copy 6: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
Window 1 copy 7: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	72	---	---	0.900	0.600
Window 1 copy 8: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
Window 1 copy 9: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
Exterior Wall 1 copy 5: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	1305	20.0	0.0	0.076	0.151
Door 3: Uninsulated Single-Layer Metal, Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	24	---	---	0.500	0.700
Door 4: Insulated Metal, Non-Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	81	---	---	0.250	1.450
Door 4 copy 1: Insulated Metal, Non-Swinging, [Bldg. Use 1 - OFFICE/WAREHOUSE]	81	---	---	0.250	1.450
Exterior Wall 8 copy 1: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - OFFICE/WAREHOUSE]	2015	16.0	0.0	0.093	0.113
Exterior Wall 11 copy 2: Steel-Framed, 16" o.c., [Bldg. Use 1 - OFFICE/WAREHOUSE]	626	20.0	0.0	0.107	0.124
WEST					
Exterior Wall 1 copy 3: Concrete Block:12", Unreinforced, Cells Insulated, Normal Density, Furring: Metal (c), [Bldg. Use 1 - OFFICE/WAREHOUSE]	1652	20.0	0.0	0.076	0.151
Window 1 copy 1: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	48	---	---	0.900	0.600
Window 1 copy 3: Metal Frame Curtain Wall/Storefront, Perf. Type:	108	---	---	0.900	0.600

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]					
Window 1 copy 4: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	72	---	---	0.900	0.600
Window 1 copy 5: Metal Frame Curtain Wall/Storefront, Perf. Type: Energy code default, Double Pane with Low-E, Clear , SHGC 0.68, [Bldg. Use 1 - OFFICE/WAREHOUSE]	72	---	---	0.900	0.600
Door 1 copy 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.82, [Bldg. Use 1 - OFFICE/WAREHOUSE]	49	---	---	1.250	0.900
Exterior Wall 11 copy 1: Steel-Framed, 16" o.c., [Bldg. Use 1 - OFFICE/WAREHOUSE]	1283	20.0	0.0	0.107	0.124

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

(b) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

(c) CMU insulated cells must be filled with a material having a maximum thermal conductivity of 0.44 Btu in./h-ft2-degrees F. Perlite, vermiculite, polystyrene beads, or spray foam as defined in ASHRAE 2009 Handbook of Fundamentals meet this requirement. Other materials require documentation of thermal conductivity.

(d) Thermal spacer block with minimum R-3.5 must be installed above the purlin/batt, and the roof deck secured to the purlins.

Envelope PASSES: Design 11% better than code

Envelope 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 systems have been designed to meet the 90.1 (2010) Standard requirements in COM*check* Version 4.0.7.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Paul Holmes, AIA
Name - Title


Signature

September 18th, 2017
Date

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 4.0% were addressed directly in the COM*check* 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
4.2.2,5.4.3.1.1,5.7 [PR1][1]	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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

Section # & Req.ID	Footing / Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.5.3.3 [FO1][2]	Below-grade wall insulation R-value.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.5.3.5 [FO3][2]	Slab edge insulation R-value.	R-____ ☐ Unheated ☐ Heated	R-____ ☐ Unheated ☐ Heated	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.1.2 [FO4][2]	Slab edge insulation installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.5 [FO5][2]	Slab edge insulation depth/length.	____ ft	____ ft	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.1.7.3 [FO7][1]	Insulation in contact with the ground has <=0.3% water absorption rate per ASTM C272.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
6.4.4.1.5 [FO11][3]	Bottom surface of floor structures incorporating radiant heating insulated to >=R-3.5.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*

Additional Comments/Assumptions:

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

Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.4.3.2 [FR1][3]	Factory-built fenestration and doors are labeled as meeting air leakage requirements.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.4.3.4 [FR4][3]	Vestibules are installed where building entrances separate conditioned space from the exterior, and meet exterior envelope requirements. Doors have self-closing devices, and are >=7 ft apart.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.4.3a [FR8][1]	Vertical fenestration U-Factor.	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.5.4.3b [FR9][1]	Skylight fenestration U-Factor.	U-_____	U-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.5.4.4.1 [FR10][1]	Vertical fenestration SHGC value.	SHGC:_____	SHGC:_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.5.4.4.2 [FR11][1]	Skylight SHGC value.	SHGC:_____	SHGC:_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.2.1 [FR12][2]	Fenestration products rated in accordance with NFRC.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.2.2 [FR13][1]	Fenestration products are certified as to performance labels or certificates provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.2.3,5.5.3.6 [FR14][2]	U-factor of opaque doors associated with the building thermal envelope meets requirements.	U-_____ ☐ Swinging ☐ Nonswinging	U-_____ ☐ Swinging ☐ Nonswinging	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.4.3.1 [FR15][1]	Continuous air barrier is wrapped, sealed, caulked, gasketed, and/or taped in an approved manner, except in semiheated spaces and in climate zones 1-6.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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
8.4.2 [EL10][2]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	☐Complies ☐Does Not ☐Not Observable ☐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	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.4.3.1 [IN1][1]	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.1 [IN2][1]	Roof R-value. For some ceiling systems, verification may need to occur during Framing Inspection.	R-____ ☐ Above deck ☐ Metal ☐ Attic	R-____ ☐ Above deck ☐ Metal ☐ Attic	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.1.2,5.8.1.3 [IN3][1]	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is <=3 in 12.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.2 [IN6][1]	Above-grade wall insulation R-value.	R-____ ☐ Mass ☐ Metal ☐ Steel ☐ Wood	R-____ ☐ Mass ☐ Metal ☐ Steel ☐ Wood	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.1.2 [IN7][1]	Above-grade wall insulation installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.5.3.4 [IN8][2]	Floor insulation R-value.	R-____ ☐ Mass ☐ Steel ☐ Wood	R-____ ☐ Mass ☐ Steel ☐ Wood	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
5.8.1.1 [IN10][2]	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.4 [IN11][2]	Eaves are baffled to deflect air to above the insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.5 [IN12][2]	Insulation is installed in substantial contact with the inside surface separating conditioned space from unconditional space.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.6 [IN13][2]	Recessed equipment installed in building envelope assemblies does not compress the adjacent insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
5.8.1.7 [IN14][2]	Exterior insulation is protected from damage with a protective material. Verification for exposed foundation insulation may need to occur during Foundation Inspection.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.7.1 [IN15][2]	Attics and mechanical rooms have insulation protected where adjacent to attic or equipment access.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.7.2 [IN16][2]	Foundation vents do not interfere with insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
5.8.1.8 [IN17][3]	Insulation intended to meet the roof insulation requirements cannot be installed on top of a suspended ceiling. Mark this requirement compliant if insulation is installed accordingly.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

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
5.4.3.3 [FI1][1]	Weatherseals installed on all loading dock cargo doors in Climate Zones 4-8.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

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