



Building a Better Illinois

50% Bid Documents Submittal

CDB: #805-030-020
DESCRIPTION: Correct Water Infiltration – Academic Building, Illinois Math and Science Academy (“IMSA”)
LOCATION: 1500 Sullivan Road
AGENCY NAME: Illinois Math and Science Academy
CITY (COUNTY), IL: Aurora (Kane), Illinois
BUILDING NO: CP078 (Main Building, not student housing)
CONTRACT: General, Plumbing, Ventilation, Electrical

State of Illinois

CAPITAL DEVELOPMENT BOARD

USING AGENCY: Illinois Board of Higher Education

BY: Globetrotters Engineering Corporation
300 S. Wacker Drive, Suite 400
Chicago, IL 60606

DATE: December 12, 2014

License Expiration Date: _____

Signature: _____

Date Signed: _____

E-MAIL THIS FORM: This form may be submitted to CDB electronically. Attach a completed form to an e-mail addressed to the CDB Project Manager. All CDB e-mail addresses are available on our website: www.cdb.state/il.us

NOTE: Cover Sheet may be submitted electronically only for review purposes. To meet contractual requirements, Cover Sheet submitted to CDB must have an original Seal and Signature.



December 12, 2014

John Nalis, Senior Project Manager
Illinois Capital Development Board
James R. Thompson Center, 14th Floor
100 West Randolph Street
Chicago, Illinois 60601

**Re: CDB Project No: 805-030-020
50% Bid Documents Submittal
Correct Water Infiltration – Academic Building, Illinois Math & Science Academy (IMSA)**

Dear Mr. Nalis:

Globetrotters Engineering Corporation (GEC) is pleased to send you the attached 50% Bid Documents Phase Submittal for the above-referenced project at IMSA. Transmitted herewith are one set of hard-copies of the submittal, and a CD which contains a complete electronic (PDF) copy of the entire submittal. Please note that we are sending four hard-copies and a CD to CDB's office in Springfield, as well as a one hard-copy and a CD to John Wandolowski at IMSA.

For a listing of the components included in this submittal, please refer to the Table of Contents which appears on the page immediately following this cover letter.

As you will note, we have included an executed CDB 50% Submittal checklist to accompany this submittal. We have made a concerted effort to respond professionally and thoroughly to all of the CDB's concerns, as well as those of the User representatives at IMSA. Please review the submittal, and let us know if you have questions and/or comments. Should you require any supplemental documentation relative to this phase of this project, please do not hesitate to contact us.

GEC appreciates CDB's and IMSA's cooperation on this important project. We look forward to continuing our work in the near future.

Sincerely yours,

GLOBETROTTERS ENGINEERING CORPORATION

Jack Svaicer, AIA
Project Manager – Director of Architecture

Cc: S. Steffens, GEC
J. Wandolowski, IMSA



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SECTION 1

CDB 50% Bid Documents Checklist

CDB REVIEW CHECKLIST

50% or 75% Design Submittal

Date December 12, 2014
 Project Number 805-030-020
 CDB PM John Nalis
 A/E Representative GEC

*This checklist has been prepared to provide clarity and instruction to A/E's in the preparation of the 50% design submittal. It indicates information that is generally expected by CDB at the 50% phase, and **neither alters nor eliminates** the requirements set forth in the Design and Construction Manual or in the Professional Services Agreement. CDB recognizes that unique challenges and solutions are inherent in each project. Therefore, these requirements should be addressed by the A/E **only as applicable** to each project and scope of work.*

Cost Estimate

- ✓ "Proposed Project Cost Budget" form including all applicable trades and the Construction Administration Fee (CAF) for each trade.
- ✓ Cost estimate
Costs are identified for each trade and a breakdown of work items within each trade. Major budgetary decisions are established, including construction cost, base bid and alternates.

Project Manual

- ✓ Divisions 00 and 01 are 95% complete
 - ✓ Table of Contents is complete
 The following sections are complete and coordinated with the technical specifications sections:
 - ✓ 01 33 23
 - 01 45 29
 - ✓ 01 78 23
 - ✓ 01 78 36
- Hazardous materials are identified
- Alternate bids are established
- ✓ Each technical specification section is partially complete in standard CDB format (as per CDB's Design and Construction Manual). A list of products and execution processes is required.
- ✓ All technical specification sections are in correct Base Bid / Alternate format (as per CDB's Design and Construction Manual), assigning work to the correct trade/contractor(s).
- Single- and dual-source products have been identified
 - Letters of request from the A/E and the Using Agency have been submitted to CDB.
- ✓ Roofing sections are complete
As per CDB's Membrane Roofing Program Handbook
- ✓ Roofing sections have been submitted to the specified roofing system manufacturers for the signing and returning of the Roofing System Manufacturer's Certificate.

Drawings

General information

- ✓ Cover Sheet G-1 is complete
- ✓ Standard CDB title block
- ✓ State Building Inventory numbers and names
- ✓ Maps
- ✓ Index of Drawings
- ✓ Key to symbols, abbreviations and material indications is provided

Civil Drawings

- Site Plan includes utility locations, topographic drawings, site drainage, parking areas, roads, sidewalks, survey control points, grades and radii
- Details are partially complete
- Cross sections are established
- Soil investigations, including septic analysis

Architectural

- Floor Plans are complete
Includes dimensions, room names, room numbers, door numbers, large equipment items, section symbols, detail symbols and interior elevation symbols
- Reflected ceiling plans are complete
Includes heights, materials finishes, light fixtures and grills
- ✓ Roof Plan is complete
As per CDB's Membrane Roofing Program Handbook
- ✓ Building elevations are complete
- ✓ Building sections are complete
- ✓ Wall sections are complete
Includes a section at each significant wall configuration
- ✓ Details
 - ✓ All connections of new work to existing structures
 - ✓ All enlarged details of wall sections
 - ✓ Roofing and flashing details
- ✓ ASHRAE 90.1 building envelope compliance forms attached
- Complicated interior elevations are complete
- Door Schedule is partially complete
Door numbers, locations, types and sizes are indicated
- Room Finish Schedule is partially complete
Room names, room numbers, finishes and ceiling heights are indicated.

50% checklist

Drawings, *continued*

Structural

- Structural Notes include information pertaining to applicable building codes, strengths of materials, live loads, dead loads, lateral loads, seismic provisions and other general notes.
- Foundation Plan is established
 - Footing schedules are partially complete
- Framing plans are complete
 - Framing systems and preliminary sizes of members are indicated
 - Frame elevation sheets are partially complete
 - Column schedules are partially complete

Plumbing

- Plumbing plans indicate fixture locations, equipment locations, gas, water, interior storm, sanitary waste and vent pipe routing.
- Plumbing equipment schedules are partially complete.
Indicates capacities of major equipment
- Basic installation details of major equipment
- Source of utilities
May be located on Site Plan or Site Utility Plan

Fire Protection

- Plans indicate sprinkler riser, standpipe riser, fire department (Siamese) connection and areas to be protected by sprinkler system or other automatic extinguishing system
- Source of water / connection to existing system

Heating

- Heating plans indicate major equipment, heating water and chilled water piping
- Equipment schedules are partially complete.
Indicates capacities of major equipment
- Basic installation details of major heating equipment

Ventilating

- Ventilating plans indicate major equipment, duct routing and location of required fire or smoke dampers
- Equipment schedules are partially complete.
- Indicates capacities of major equipment*
- Basic installation details of major ventilating equipment
- Provision for oversized or backup equipment
In consideration of future capacity

Temperature Controls

- Sequence of operations for major equipment
- Preliminary points list
- Temperature control / building automation system connection to existing system
- ASHRAE 90.1 mechanical system compliance forms attached

Electrical

- Electrical plans indicate fixtures, devices, symbols, mechanical equipment and special systems, including fire detection/alarms
- Ratings are partially determined
Service entrance equipment, switchgear, panelboards, motor services and other equipment
- All feeders 100A and larger that are shown should show conduit routing
Home run symbols are not acceptable
- Code-required clearances are established
- Equipment schedules are partially complete, identifying all equipment
- Power one-line diagrams are partially complete
Indicates all panels, transformers, voltages, main overcurrent devices and amp ratings
- Panel schedules are partially complete
Indicates the load requirements per circuit, the total panel connected loads and any de-rated load calculations
- Special systems one-line diagrams show all major equipment
- Grounding electrode system and connections are shown
- Illumination levels are indicated, and light sources are identified
- ASHRAE 90.1 electrical system compliance forms attached

Miscellaneous

- List of required construction phase tests
- Utility contact information – names, phone numbers, etc.



SECTION 2

Proposed Project Cost Budget Form & Cost Estimate

State of Illinois
CAPITAL DEVELOPMENT BOARD

FOR CDB USE ONLY	
Name:	
Project No:	
Contract No:	
C.F. Locale	Design Phase

**PROPOSED PROJECT
COST BUDGET**

CDB PROJECT NUMBER:	805-030-020	DATE PREPARED:	12-Dec-14
BLDG. INVENTORY NO:	CP078	PROJECT STATUS:	50% Bid Documents Submittal
PROJECT:	Correct Water Infiltration	GSF: 332,000 NSF:	NASF/GSF:
LOCATION:	IL Math & Science Academy	SITE ACREAGE:	N.A.
A/E:	Globetrotters Engineering Corp.	PREPARED BY:	Steven Steffens
CDB PROJECT MANAGER:	John Nalis		

1.	LAND ACQUISITION COST	\$0.00
2.	MOVABLE EQUIPMENT	\$0.00
3.	ART-IN ARCHITECTURE	\$0.00
4.	OTHER	\$0.00
5.	A/E Basic Service Fee	\$254,500.00
6.	Additional Services	\$0.00
7.	Construction Admin. Fee	\$7,700.00
8.	On-Site Representative	\$81,000.00
9.	Subtotal (1 thru 8)	\$343,200.00
10.	A/E REIMBURSABLES	
a.	Subsoil Investigation	\$0.00
b.	Design Ph. Material Testing	\$10,000.00
c.	Construction Ph Material Test	\$0.00
d.	Printing	\$0.00
e.	Roof Cuts	\$10,000.00
f.	Test & Balance	\$6,000.00
g.		
h.		
i.		
11.	Subtotal (10a thru 10i)	\$26,000.00
12.	TOTAL (9 plus 11)	\$369,200.00

RECAP OF CONSTRUCTION COSTS (Base Bid)
(From Page 2 Worksheet)

TRADE ESTIMATES (Column H)		
General	\$2,346,675.00	
Plumbing	\$66,075.00	
Heating	\$0.00	
Ventilating	\$302,650.00	
Electrical	\$191,225.00	
Asbestos	\$0.00	
Sprinkler	\$0.00	
	\$0.00	
	\$0.00	
	\$0.00	
Contingency (Column D Total)		\$282,172.50
13. TOTAL BASE BID BUDGET	\$3,188,797.50	
(Trade estimates plus contingency)		\$3,188,797.50

14.	TOTAL BUDGET (12 plus 13)	\$3,557,997.50
15.	Total Project Funds	\$3,500,000.00
	(From Project Scope)	
	Available Funds for	
16.	Construction	\$3,130,800.00
	(15 minus 12)	
17.	Alternates (Total from Page 2)	\$0.00
18.	Base Bid plus Alternates	\$3,188,797.50
	(13 plus 17)	

Worksheets

TRADE	A Building (Base Bid Estimate)	B Site Work (Base Bid Estimate)	C Subtotal (A + B)	D Contingency (Cx10%)	E Alternates	F Subtotal (C+E)	G CAF (Fx3%) Round up to next \$100	H Subtotal (C+G)	I Total (D+ F +G)	J I/GSF
General	\$2,278,275.00		\$2,278,275.00	227,827.50	\$0.00	\$2,278,275.00	\$68,400.00	\$2,346,675.00	\$2,574,502.50	\$7.75
Plumbing	\$64,075.00		\$64,075.00	6,407.50	\$0.00	\$64,075.00	\$2,000.00	\$66,075.00	\$72,482.50	\$0.22
Heating			\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Ventilating	\$293,750.00		\$293,750.00	29,375.00	\$0.00	\$293,750.00	\$8,900.00	\$302,650.00	\$332,025.00	\$1.00
Electrical	\$185,625.00		\$185,625.00	18,562.50	\$0.00	\$185,625.00	\$5,600.00	\$191,225.00	\$209,787.50	\$0.63
Asbestos			\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Sprinkler			\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
			\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
			\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Column Totals	\$2,821,725.00	\$0.00	\$2,821,725.00	\$282,172.50	\$0.00	\$2,821,725.00	\$84,900.00	\$2,906,625.00	\$3,188,797.50	\$9.60

TRADE	Alternate #1	Alternate #2	Alternate #3	Alternate #4	Alternate #5	Alternate #6	Alternate #7	Alternate #8	Totals
General									\$0.00
Plumbing									\$0.00
Heating									\$0.00
Ventilating									\$0.00
Electrical									\$0.00
Asbestos									\$0.00
Sprinkler									\$0.00
									\$0.00
									\$0.00
Column Totals	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

E-MAIL THIS FORM
 This form may be submitted to CDB electronically. Attach a completed form to an e-mail addressed to the CDB Project Manager. All CDB e-mail addresses are available on our website: www.cdb.state.il

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: COST RECAPITULATION

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

COST RECAPITULATION

ROOF AREA NO.	ABBREVIATED DESCRIPTION OF WORK	BASE SCOPE COSTS
1	Remedial Repairs.	\$463,202
2 - 4	Remedial repairs (monitor window replacement, membrane, AHU cap covers)	\$446,698
5	Replace roof, build parapet, provide code-compliant slope & thermal barrier	\$150,938
6	Replace roof, build parapet, provide code-compliant slope & thermal barrier	\$173,914
7	Replace roof, build parapet, provide code-compliant slope & thermal barrier	\$65,634
8 - 10	Replace roof, build parapet, provide code-compliant slope & thermal barrier	\$395,164
11 - 13	Replace roof, build parapet, provide code-compliant slope & thermal barrier	\$345,644
14	Install new roof at adjacent roof elevation, relocate AHU's	\$163,796
15	Install new roof at adjacent roof elevation, relocate/replace AHU's	\$301,119
16	Replace roof (including all existing insulation), build kneewalls	\$287,680
<hr/>		
	TOTAL ALL WORK	\$2,793,787
	Escalation Cost 12/12/14 to 3/1/16 (1% of Grand Total All Work)	\$27,938
<hr/>		
	GRAND TOTAL ALL WORK	\$2,821,725

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: REMEDIAL REPAIRS AT ROOF AREA 1

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO BALLASTED EPDM ROOF	SQ'S	136.50	\$82.50	\$11,261
DEMO ROOF EDGE At eaves and at parapet ends, incl. gutters.	LF	920	\$2.50	\$2,300
NEW ROOF EDGE Includes blocking and sheet metal flashing.	LF	920	\$18.00	\$16,560
NEW EXPANSION JOINTS	LF	45	\$21.00	\$945
FLUE PIPE PENETRATION FLASHINGS	EACH	4	\$200.00	\$800
REMOVE & REINSTALL VENTILATORS	EACH	8	\$250.00	\$2,000
NEW BALLASTED EPDM ROOF	SQ'S	136.50	\$184.00	\$25,116
NEW WATERPROOFING OVER MANSARD Includes self-adhered membrane (North & South sides).	SF	16,704	\$6.50	\$108,576
NEW STANDING SEAM ROOF OVER MANSARD Includes anchor clips and trim. Prefinished aluminum to match existing mansard (North & South sides).	SF	16,704	\$8.15	\$136,138
NEW GUTTERS	LF	696	\$10.50	\$7,308
NEW DOWNSPOUTS	LF	288	\$15.30	\$4,406
NEW KNEEWALL AT MANSARD BASE At South side of Roof Area 16:				
Cold-formed steel framing	LF	348	\$13.00	\$4,524
Insulation (R-13 batt + continuous R-7.5)	SF	696	\$3.00	\$2,088
Continuous expansion joint	LF	348	\$7.00	\$2,436
Stainless steel flashing & counterflashing	LF	348	\$14.00	\$4,872
5/8" thick plywood sheathing	SF	480	\$2.43	\$1,166
SBS modified bitumen roof membrane	SF	696	\$3.55	\$2,471
REMOVE AND RESET PAVERS	EACH	172	\$100.00	\$17,200
<u>VENTILATING:</u>				
REMOVE & REINSTALL VENTILATORS	EACH	8	\$1,000.00	\$8,000
<u>ELECTRICAL:</u>				
REMOVE & REINSTALL VENTILATORS	EACH	8	\$1,000.00	\$8,000
SUBTOTAL 1				\$366,167
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$366,167
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$54,925
GENERAL CONDITIONS (10%)				\$42,109
GRAND TOTAL				\$463,202

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: REMEDIAL REPAIRS AT ROOF AREAS 2, 3 & 4

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
MONITOR WINDOW DEMOLITION	SF	3,375	\$3.56	\$12,015
NEW STOREFRONT MONITOR WINDOW Includes insulated glass, thermally improved aluminum frame and opaque glass on surface #4.	SF	3,375	\$78.00	\$263,250
EXISTING ROOF MEMBRANE REPAIR Includes replacement of 110sf of wet insulation per 9/8/14 infrared survey and at roof perimeter flashing.	SF	1,338	\$16.20	\$21,676
VENTILATION MODIFICATIONS				
At Air Handling Units experiencing severe water infiltration:				
Galvanized steel custom-fabricated cap w/clips, 4" deep polystyrene support and waterproofing membrane on top.	EACH	4	\$2,500.00	\$10,000
Modify EF curb to drain properly.	EACH	1	\$1,000.00	\$1,000
<u>VENTILATING:</u>				
At Exhaust Fan with deformed curb:				
Remove EF, modify curb to drain properly and reinstall EF.	EACH	1	\$1,000.00	\$1,000
REMOVE & REPLACE DUCTWORK THRU CLERESTORY WINDOW INSULATED BLANKOFF PANELS	EACH	28	\$1,000.00	\$28,000
<u>ELECTRICAL:</u>				
Remove EF, modify curb and reinstall EF.	EACH	1	\$1,000.00	\$1,000
Remove and reinstall conduits thru monitor windows.	EACH	5	\$1,200.00	\$6,000
<u>PLUMBING:</u>				
REMOVE AND REPLACE GAS LINE SUPPORTS Represents removal of existing supports and installation of new supports of approximately 1,300 LF of pipe over the entire facility's roof areas.	EACH	204	\$45.00	\$9,180
SUBTOTAL 1				\$353,121
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$353,121
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$52,968
GENERAL CONDITIONS (10%)				\$40,609
GRAND TOTAL				\$446,698

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 5

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	85.55	\$82.50	\$7,058
DEMO ROOF EDGE At perimeter to accommodate thicker insulation.	LF	377	\$2.25	\$848
DEMO ROOF HATCH	EACH	1	\$100.00	\$100
DEMO SMOKE VENTS	EACH	2	\$225.00	\$450
MODIFY EQUIPMENT CURBS	EACH	7	\$500.00	\$3,500
NEW POLYISOCYANURATE INSULATION 100% of existing insulation retained per 9/8/14 infrared survey, total average thickness of 6.25".	SF	8555	\$3.25	\$27,804
NEW 1/2" THICK RECOVER BOARD	SF	8555	\$1.00	\$8,555
NEW ROOF EXPANSION JOINTS	LF	76	\$21.00	\$1,596
NEW FULLY ADHERED TPO ROOF	SQ'S	85.55	\$315.00	\$26,948
NEW BUILT-UP ROOF EDGE				
Cold-formed steel framing	LF	377	\$13.00	\$4,901
Aluminum cap flashing & counterflashing	LF	377	\$14.00	\$5,278
5/8" thick plywood sheathing	SF	377	\$2.43	\$916
SBS modified bitumen roof membrane	SF	480	\$3.55	\$1,704
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$4,000.00	\$4,000
NEW SMOKE VENTS	EACH	2	\$3,000.00	\$6,000
<u>VENTILATING:</u>				
MODIFY EQUIPMENT CURBS	EACH	7	\$1,000.00	\$7,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	7	\$1,000.00	\$7,000
DEMO & NEW SMOKE VENTS	EACH	2	\$1,000.00	\$2,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS	EACH	4	\$540.00	\$2,160
SUBTOTAL 1				\$119,318
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$119,318
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$17,898
GENERAL CONDITIONS (10%)				\$13,722
GRAND TOTAL				\$150,938

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 6

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	73.76	\$82.50	\$6,085
DEMO ROOF EDGE	LF	270	\$2.25	\$608
DEMO ROOF HATCH	EACH	1	\$100.00	\$100
MODIFY EQUIPMENT CURBS	EACH	20	\$500.00	\$10,000
NEW POLYISOCYANURATE INSULATION 100% of existing insulation retained per 9/8/14 infrared survey, total average thickness of 6.25".	SF	7376	\$3.25	\$23,972
NEW 1/2" THICK RECOVER BOARD	SF	7376	\$1.00	\$7,376
NEW ROOF EXPANSION JOINTS	LF	76	\$21.00	\$1,596
NEW FULLY ADHERED TPO ROOF	SQ'S	73.76	\$315.00	\$23,234
NEW BUILT-UP ROOF EDGE				
Aluminum cap flashing & counterflashing	LF	270	\$14.00	\$3,780
Replacement standing seam wall cover	SF	1350	\$8.00	\$10,800
SBS modified bitumen flashing	SF	270	\$5.00	\$1,350
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$4,000.00	\$4,000
<u>VENTILATING:</u>				
MODIFY EQUIPMENT CURBS	EACH	20	\$1,000.00	\$20,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	20	\$1,000.00	\$20,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS	EACH	2	\$540.00	\$1,080
MODIFY PIPES AT AHU'S	EACH	2	\$1,000.00	\$2,000
SUBTOTAL 1				\$137,481
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$137,481
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$20,622
GENERAL CONDITIONS (10%)				\$15,810
GRAND TOTAL				\$173,914

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 7

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	33.29	\$82.50	\$2,746
DEMO ROOF EDGE	LF	163	\$2.25	\$367
MODIFY EQUIPMENT CURBS	EACH	3	\$500.00	\$1,500
NEW POLYISOCYANURATE INSULATION 100% of existing insulation retained per 9/8/14 infrared survey, total average thickness of 6.25".	SF	3329	\$3.25	\$10,819
NEW 1/2" THICK RECOVER BOARD	SF	3329	\$1.00	\$3,329
NEW FULLY ADHERED TPO ROOF	SQ'S	33.29	\$315.00	\$10,486
NEW BUILT-UP ROOF EDGE				
Aluminum cap flashing & counterflashing	LF	163	\$14.00	\$2,282
Replacement standing seam wall cover	SF	750	\$8.00	\$6,000
SBS modified bitumen flashing	SF	163	\$5.00	\$815
Tie-in parapet wall to shingle roof	LS	1	\$3,000.00	\$3,000
<u>VENTILATING:</u>				
MODIFY EQUIPMENT CURBS	EACH	3	\$1,000.00	\$3,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	3	\$1,000.00	\$3,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS	EACH	1	\$540.00	\$540
NEW ROOF DRAINS AT NEW LOCATION	EACH	1	\$3,000.00	\$3,000
MODIFY PIPES AT AHU	EACH	1	\$1,000.00	\$1,000
SUBTOTAL 1				\$51,885
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$51,885
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$7,783
GENERAL CONDITIONS (10%)				\$5,967
GRAND TOTAL				\$65,634

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREAS 8, 9 & 10

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	191.28	\$82.50	\$15,781
DEMO ROOF EDGE	LF	445	\$2.25	\$1,001
DEMO ROOF HATCH	EACH	1	\$100.00	\$100
MODIFY EQUIPMENT CURBS	EACH	15	\$500.00	\$7,500
NEW POLYISOCYANURATE INSULATION 100% of existing insulation retained at 8 and 9 per 9/8/14 infrared survey, total average thickness of 7".	SF	8773	\$3.75	\$32,899
NEW POLYISOCYANURATE INSULATION 100% of existing insulation replaced at 10 per JM, total average thickness of 7".	SF	10355	\$7.50	\$77,663
NEW VAPOR BARRIER @ ROOF 10 ONLY	SF	10355	\$1.50	\$15,533
NEW 1/2" THICK RECOVER BOARD	SF	19128	\$1.00	\$19,128
NEW ROOF EXPANSION JOINTS	LF	140	\$21.00	\$2,940
NEW BUILDING EXPANSION JOINTS As presented on Drawing SKf.	LF	115	\$52.00	\$5,980
NEW FULLY ADHERED TPO ROOF	SQ'S	191.28	\$315.00	\$60,253
NEW PARAPET AT ROOF EDGE				
Cold-formed steel framing	LF	445	\$13.00	\$5,785
Aluminum cap flashing & counterflashing	LF	445	\$14.00	\$6,230
5/8" thick plywood sheathing	SF	1225	\$2.43	\$2,977
1/2" thick perlite recover board	SF	1225	\$1.00	\$1,225
Prefinished standing seam parapet wall cover	SF	1225	\$8.00	\$9,800
SBS modified bitumen roof membrane	SF	1225	\$3.55	\$4,349
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$4,000.00	\$4,000
<u>VENTILATING:</u>				
MODIFY EQUIPMENT CURBS	EACH	15	\$1,000.00	\$15,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	15	\$1,000.00	\$15,000
MODIFY CONDUIT AT CONDENSING UNIT	EACH	1	\$3,000.00	\$3,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS	EACH	6	\$540.00	\$3,240
MODIFY PIPES AT CONDENSING UNIT	EACH	1	\$1,500.00	\$1,500
SUBTOTAL 1				\$312,382
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$312,382
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$46,857
GENERAL CONDITIONS (10%)				\$35,924
GRAND TOTAL				\$395,164

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREAS 11, 12 & 13

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	171.94	\$82.50	\$14,185
DEMO ROOF EDGE	LF	438	\$2.25	\$986
DEMO ROOF HATCH	EACH	1	\$100.00	\$100
MODIFY EQUIPMENT CURBS	EACH	30	\$500.00	\$15,000
NEW POLYISOCYANURATE INSULATION 100% of existing insulation retained per 9/8/14 infrared survey, total average thickness of 7".	SF	17194	\$3.75	\$64,478
NEW 1/2" THICK RECOVER BOARD	SF	17194	\$1.00	\$17,194
NEW ROOF EXPANSION JOINTS	LF	148	\$21.00	\$3,108
NEW BUILDING EXPANSION JOINTS As presented on Drawing SKe.	LF	104	\$52.00	\$5,408
NEW FULLY ADHERED TPO ROOF	SQ'S	171.94	\$315.00	\$54,161
NEW PARAPET AT ROOF EDGE				
Cold-formed steel framing	LF	438	\$13.00	\$5,694
Aluminum cap flashing & counterflashing	LF	438	\$14.00	\$6,132
5/8" thick plywood sheathing	SF	1205	\$2.43	\$2,928
1/2" thick perlite recover board	SF	1205	\$1.00	\$1,205
Prefinished standing seam parapet wall cover	SF	1205	\$8.00	\$9,640
SBS modified bitumen roof membrane	SF	1205	\$3.55	\$4,278
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$4,000.00	\$4,000
<u>VENTILATING:</u>				
MODIFY EQUIPMENT CURBS	EACH	30	\$1,000.00	\$30,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	30	\$1,000.00	\$30,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS	EACH	6	\$540.00	\$3,240
SUBTOTAL 1				\$273,236
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$273,236
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$40,985
GENERAL CONDITIONS (10%)				\$31,422
GRAND TOTAL				\$345,644

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 14

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	19.30	\$82.50	\$1,592
NEW POLYISOCYANURATE INSULATION Assumes total replacement of existing insulation with an average thickness of 6.25".	SF	1930	\$6.50	\$12,545
NEW 1/2" THICK RECOVER BOARD	SF	1930	\$1.00	\$1,930
NEW RAISED ROOF - STEEL BAR JOISTS	LF	405	\$25.50	\$10,328
NEW RAISED ROOF - STEEL DECK	SF	1930	\$5.50	\$10,615
NEW RAISED ROOF - STEEL CONNECTION DETAILS	LS	1	\$10,000.00	\$10,000
NEW BUILDING EXPANSION JOINT	LF	27	\$52.00	\$1,404
NEW FULLY ADHERED TPO ROOF	SQ'S	19.30	\$315.00	\$6,080
NEW CRICKET IN EXISTING ROOF VALLEY	SF	1380	\$10.50	\$14,490
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$2,000.00	\$2,000
REMOVE & REINSTALL HVAC EQUIPMENT	EACH	3	\$3,000.00	\$9,000
INFILL OPENINGS IN DECK (HVAC EQUIPMENT)	EACH	3	\$2,000.00	\$6,000
<u>VENTILATION MODIFICATIONS</u> At Air Handling Units experiencing severe water infiltration:				
Galvanized steel custom-fabricated cap w/clips, 4" deep polystyrene support and waterproofing membrane on top.	EACH	3	\$2,500.00	\$7,500
<u>VENTILATING:</u>				
REMOVE & REINSTALL HVAC EQUIPMENT	EACH	3	\$5,000.00	\$15,000
<u>ELECTRICAL:</u>				
REMOVE & REINSTALL HVAC EQUIPMENT	EACH	3	\$2,500.00	\$7,500
NEW LIGHT FIXTURES IN MECHANICAL SPACE	EACH	4	\$1,500.00	\$6,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS Includes pipe conection to existing.	EACH	2	\$1,500.00	\$3,000
REMOVE & REINSTALL HVAC EQUIPMENT	EACH	2	\$1,500.00	\$3,000
SUBTOTAL 1				\$129,483
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$129,483
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$19,422
GENERAL CONDITIONS (10%)				\$14,891
GRAND TOTAL				\$163,796

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 15

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	34.80	\$82.50	\$2,871
NEW POLYISOCYANURATE INSULATION Assumes total replacement of existing insulation with an average thickness of 6.25".	SF	3480	\$6.50	\$22,620
NEW 1/2" THICK RECOVER BOARD	SF	3480	\$1.00	\$3,480
NEW RAISED ROOF - STEEL BAR JOISTS	LF	741	\$25.50	\$18,896
NEW RAISED ROOF - STEEL DECK	SF	3480	\$5.50	\$19,140
NEW RAISED ROOF - STEEL CONNECTION DETAILS	LS	1	\$10,000.00	\$10,000
NEW BUILDING EXPANSION JOINT	LF	40	\$52.00	\$2,080
NEW FULLY ADHERED TPO ROOF	SQ'S	34.80	\$315.00	\$10,962
NEW CRICKET IN EXISTING ROOF VALLEY	SF	1380	\$10.50	\$14,490
NEW ROOF HATCH	EACH	1	\$1,500.00	\$1,500
NEW ROOF HATCH LADDER	EACH	1	\$2,000.00	\$2,000
REMOVE & REINSTALL MECHANICAL EQUIPMENT	EACH	2	\$3,000.00	\$6,000
REMOVE EXISTING MECHANICAL EQUIPMENT	EACH	2	\$2,500.00	\$5,000
INFILL OPENINGS IN DECK (HVAC EQUIPMENT)	EACH	4	\$2,000.00	\$8,000
VENTILATION MODIFICATIONS At Air Handling Units experiencing severe water infiltration:				
Galvanized steel custom-fabricated cap w/clips, 4" deep polystyrene support and waterproofing membrane on top.	EACH	2	\$2,500.00	\$5,000
<u>VENTILATING:</u>				
REMOVE & REINSTALL MECHANICAL EQUIPMENT	EACH	2	\$2,500.00	\$5,000
REMOVE EXISTING MECHANICAL EQUIPMENT	EACH	2	\$1,500.00	\$3,000
NEW MECHANICAL EQUIPMENT	EACH	2	\$35,000.00	\$70,000
<u>ELECTRICAL:</u>				
REMOVE & REINSTALL HVAC EQUIPMENT	EACH	2	\$1,500.00	\$3,000
REMOVE EXISTING MECHANICAL EQUIPMENT	EACH	2	\$1,000.00	\$2,000
NEW MECHANICAL EQUIPMENT	EACH	2	\$2,500.00	\$5,000
NEW LIGHT FIXTURES IN MECHANICAL SPACE	EACH	6	\$1,500.00	\$9,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS AT EXISTING LOCATIONS Includes pipe connection to existing.	EACH	2	\$1,500.00	\$3,000
MODIFY PIPES AT AHU'S	EACH	4	\$1,500.00	\$6,000
SUBTOTAL 1				\$238,039
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$238,039
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$35,706
GENERAL CONDITIONS (10%)				\$27,374
GRAND TOTAL				\$301,119

STATE OF ILLINOIS - CAPITAL DEVELOPMENT BOARD

IMSA - CORRECT WATER INFILTRATION - PROJECT NO. 805-030-020 - 50% BID DOCUMENT SUBMITTAL

COST ESTIMATE: ROOF AREA 16

GLOBETROTTERS ENGINEERING CORP.

DATE: 12/12/2014

ITEM OF WORK	UNIT	QUANTITY	COST	EXTENDED COST
<u>GENERAL:</u>				
SELECTIVE DEMO EPDM ROOF	SQ'S	116.21	\$82.50	\$9,587
DEMO ROOF EDGE At East and West ends.	LF	88	\$2.25	\$198
MODIFY EQUIPMENT CURBS	EACH	21	\$500.00	\$10,500
NEW POLYISOCYANURATE INSULATION Assumes total replacement of existing insulation with an average thickness of 6.25".	SF	11621	\$6.50	\$75,537
NEW 1/2" THICK RECOVER BOARD	SF	11621	\$1.00	\$11,621
NEW ROOF EDGE Includes blocking and sheet metal flashing.	LF	88	\$16.00	\$1,408
NEW EXPANSION JOINTS	LF	88	\$21.00	\$1,848
NEW FULLY ADHERED TPO ROOF	SQ'S	116.21	\$315.00	\$36,606
TUCKPOINT CMU WALL JOINTS	SF	500	\$4.50	\$2,250
PAINT CMU WALL	SF	500	\$2.50	\$1,250
NEW KNEEWALL AT MANSARD BASE At North side of Roof Area 16:				
Cold-formed steel framing	LF	240	\$13.00	\$3,120
Insulation (R-13 batt + continuous R-7.5)	SF	480	\$3.00	\$1,440
Stainless steel flashing & counterflashing	LF	240	\$14.00	\$3,360
5/8" thick plywood sheathing	SF	480	\$2.43	\$1,166
SBS modified bitumen roof membrane	SF	480	\$3.55	\$1,704
NEW LADDER FROM AREA 12 TO AREA 16	EACH	1	\$4,000.00	\$4,000
DEMO EXISTING ROOF HATCH & LADDER	EACH	1	\$1,500.00	\$1,500
<u>VENTILATING:</u>				
VENTILATION MODIFICATIONS At each Air Handling Unit:				
Reconfigure ducts thru mansard	EACH	6	\$1,500.00	\$9,000
MODIFY EQUIPMENT CURBS	EACH	21	\$1,000.00	\$21,000
<u>ELECTRICAL:</u>				
MODIFY EQUIPMENT CURBS	EACH	21	\$1,000.00	\$21,000
<u>PLUMBING:</u>				
NEW ROOF DRAINS	EACH	8	\$540.00	\$4,320
MODIFY PIPES AT AHU'S	EACH	5	\$1,000.00	\$5,000
SUBTOTAL 1				\$227,415
DESIGN CONTINGENCY (10% INCLUDED ON CDB PPCB FORM)				\$0
SUBTOTAL 2				\$227,415
GENERAL CONTRACTOR OVERHEAD (5%) & PROFIT (10%)				\$34,112
GENERAL CONDITIONS (10%)				\$26,153
GRAND TOTAL				\$287,680

Comments:

1) Kneewall detail incorporated at North side of roof (similar to South side as indicated on Roof Area 1 costs, but without EJ).



SECTION 3

Project Manual

(submitted under separate cover)



SECTION 4

50% Bid Documents - Drawings

(submitted under separate cover)



SECTION 5

Current Project Schedule



CURRENT PROJECT SCHEDULE

In accordance with the CDB's review checklist for the 50% Bid Documents Submittal, and as required by the CDB's Design and Construction Manual, GEC hereby submits the following as its understanding of the anticipated key timeframes for the design and construction of the work under this project, CDB number 805-030-020:

- 100% Bid Document Submittal scheduled for February 13, 2015
- Bid Document Release scheduled for April 10, 2015
- Prime Bid scheduled for May 22, 2015
- Procurement review completed by approximately August 22, 2015
- Prime Contractor Authorization to Proceed by approximately September 1, 2015
- All construction work to be accomplished between September, 2015 and April, 2017 (approximately)
- Work in 2015:
 - Start date – approximately September 1, 2015
 - Suspend work date – approximately November 6, 2015 (to ensure proper weather-protection of the building for the winter)
- Work in 2016-2017:
 - Resume work date – approximately March 28, 2016
 - Begin cold weather work restrictions – approximately November 6, 2016
 - Substantial completion date – approximately February 24, 2017 (dependent on weather not excessively inhibiting progress)
 - Final acceptance date – approximately April 21, 2017

NOTE: The above is based upon traditional project delivery, i.e., a Design / Bid / Build scenario.



SECTION 6

ASHRAE 90.1 – 2010 Compliance Forms



COMcheck Software Version 3.9.4
Envelope Compliance Certificate

90.1 (2010) Standard

Section 1: Project Information

Project Type: **Alteration**

Project Title : Correct Water Infiltration

Construction Site:
 1500 Sullivan Road
 Aurora, IL 60506

Owner/Agent:
 Capital Development Board of Illinois

Designer/Contractor:
 Globetrotters Engineering, Inc.
 300 S. Wacker Drive
 Chicago, IL 60602
 (312) 922-6400

Section 2: General Information

Building Location (for weather data): **Aurora, Illinois**
 Climate Zone: **5a**
 Building Space Conditioning Type(s): **Nonresidential**
 Vertical Glazing / Wall Area Pct.: **35%**

Activity Type(s) **Floor Area**
 9-12 Classrooms (Common Space **80121**
 Types:Classroom/Lecture/Training)

Section 3: Envelope Assemblies

Envelope PASSES

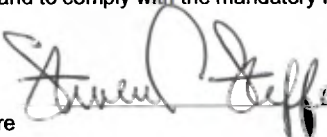
Climate-Specific Requirements:

Post-Alteration Assembly	R-Value		Proposed		Max. Allowed	
	Cavity	Cont.	U-Factor	SHGC	U-Factor	SHGC
Roof 1: Insulation Entirely Above Deck	--	25.0	0.039	--	0.048	--
Window 1: Metal Frame with Thermal Break, Perf. Type: Other testing/cert. Product ID: P-KAW 9042, SHGC 0.33	--	--	0.319	0.334	0.550	0.400

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

Section 4: Compliance Statement

Compliance Statement: The proposed envelope alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope alteration project has been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

STEVEN STEFFENS-ARCHITECT  12/12/2014
 Name - Title Signature Date



COMcheck Software Version 3.9.4

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 89.0% 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.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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90.1 (2010) Standard	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.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: G001
4.2.2.8.4. 1.1.8.4.1. 2,8.7 [PR6] ²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
5.5.4.2.3 [PR14] ¹	In buildings having <= four stories, any enclosed spaces > 5,000 ft ² directly under a roof with ceiling heights > 15 ft. and used as an office, lobby, atrium, concourse, corridor, storage, gymnasium/exercise center, convention center, automotive service, manufacturing, non-refrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, the following requirements apply: (a) The daylight zone under skylights is >= half the floor area;(b) the skylight area to daylight zone is >= 3 percent with a skylight VT >= 0.40; or a minimum skylight effective aperture >= 1 percent, and (c) the skylights have a measured haze value > 90 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. Location on plans/spec: G001

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-_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.5.3.5 [FO3] ²	Slab edge insulation R-value.	R-_____ <input type="checkbox"/> Unheated <input type="checkbox"/> Heated	R-_____ <input type="checkbox"/> Unheated <input type="checkbox"/> Heated	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.5.3.5 [FO5] ²	Slab edge insulation depth/length.	_____ ft	_____ ft	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.8.1.7.3 [FO7] ¹	Insulation in contact with the ground has $\leq 0.3\%$ water absorption rate per ASTM C272.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: Not Applicable.

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
5.5.4.3a [FR8] ¹	Vertical fenestration U-Factor.	U- <u>0.319</u>	U- _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.5.4.3b [FR9] ¹	Skylight fenestration U-Factor.	U- _____	U- _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.5.4.4.1 [FR10] ¹	Vertical fenestration SHGC value.	SHGC: <u>0.334</u>	SHGC: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.5.4.4.2 [FR11] ¹	Skylight SHGC value.	SHGC: _____	SHGC: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
5.8.2.1 [FR12] ²	Fenestration products rated in accordance with NFRC.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A501
5.8.2.2 [FR13] ¹	Fenestration products are certified as to performance labels or certificates provided.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A501
5.8.2.3, 5.3.6 [FR14] ²	U-factor of opaque doors associated with the building thermal envelope meets requirements.	U- _____ <input type="checkbox"/> Swinging <input type="checkbox"/> Nonswinging	U- _____ <input type="checkbox"/> Swinging <input type="checkbox"/> Nonswinging	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> 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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A103, A104

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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90.1 (2010) Standard	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.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A103, A104
5.5.3.1 [IN2] ¹	Roof R-value. For some ceiling systems, verification may need to occur during Framing Inspection.	R- <u>25</u> <input checked="" type="checkbox"/> Above deck <input type="checkbox"/> Metal <input type="checkbox"/> Attic	R- _____ <input type="checkbox"/> Above deck <input type="checkbox"/> Metal <input type="checkbox"/> Attic	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<i>See the Envelope Assemblies table for values.</i>
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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A103, A104
5.5.3.2 [IN6] ¹	Above-grade wall insulation R-value.	R- _____ <input type="checkbox"/> Mass <input type="checkbox"/> Metal <input type="checkbox"/> Steel <input type="checkbox"/> Wood	R- _____ <input type="checkbox"/> Mass <input type="checkbox"/> Metal <input type="checkbox"/> Steel <input type="checkbox"/> Wood	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Envelope Assemblies table for values.</i>
5.5.3.4 [IN8] ²	Floor insulation R-value.	R- _____ <input type="checkbox"/> Mass <input type="checkbox"/> Steel <input type="checkbox"/> Wood	R- _____ <input type="checkbox"/> Mass <input type="checkbox"/> Steel <input type="checkbox"/> Wood	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Envelope Assemblies table for values.</i>
5.8.1.1 [IN10] ²	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
5.8.1.4 [IN11] ²	Eaves are baffled to deflect air to above the insulation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: Not Applicable
5.8.1.5 [IN12] ²	Insulation is installed in substantial contact with the inside surface separating conditioned space from unconditional space.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A501-A503
5.8.1.6 [IN13] ²	Recessed equipment installed in building envelope assemblies does not compress the adjacent insulation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: Not Applicable.
5.8.1.7.1 [IN15] ²	Attics and mechanical rooms have insulation protected where adjacent to attic or equipment access.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 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
5.8.1.7.2 [IN16] ²	Foundation vents do not interfere with insulation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
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.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: A501-A503

Additional Comments/Assumptions:

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

90.1 (2010) Standard	Final Inspection	Complies?	Comments/Assumptions
5.4.3.3 [F11] ¹	Weatherseals installed on all loading dock cargo doors in Climate Zones 4-8.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	Exception: Requirement does not apply. Location on plans/spec: Not Applicable

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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COMcheck Software Version 3.9.4
**Interior Lighting and Power
 Compliance Certificate**

90.1 (2010) Standard

Section 1: Project Information

Project Type: **Alteration**

Project Title : Correct Water Infiltration

Construction Site:
 1500 Sullivan Road
 Aurora, IL 60506

Owner/Agent:
 Capital Development Board of Illinois

Designer/Contractor:
 G lobetrotters Engineering, Inc.
 300 S. Wacker Drive
 Chicago, IL 60602

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)
Access Crawl Space (Common Space Types:Electrical/Mechanical)	1000	0.95	950
Total Allowed Watts =			950

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)
Access Crawl Space (Common Space Types:Electrical/Mechanical 1000 sq.ft.)				
LED 1: LED A Lamp 25W:	1	10	30	300
Total Proposed Watts =				300

Interior Lighting PASSES

Section 4: 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 90.1 (2010) Standard requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

PALL ROGAS - ENGINEER
 Name - Title

Paul Rogas
 Signature

12/12/2014
 Date

Section 5: Post Construction Compliance Statement

Record Drawings and Operating and Maintenance Manuals:

- 1. Construction documents with record drawings and operating and maintenance manuals provided to the owner.

 Lighting Designer or Contractor Name

 Signature

 Date



COMcheck Software Version 3.9.4

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 7.0% 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.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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90.1 (2010) Standard	Plan Review	Complies?	Comments/Assumptions
4.2.2,8.4. 1.1,8.4.1. 2,8.7 [PR6] ²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
4.2.2,9.4. 4,9.7 [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 checked="" 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)

90.1 (2010) Standard	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.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	Exception: Space type is not private office, open office, or computer classroom.
9.4.1.1 [EL1] ²	Automatic controls to shut off all building lighting installed in buildings.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
9.4.1.2 [EL2] ²	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
9.4.1.3 [EL11] ²	Parking garage lighting is equipped with required lighting controls and daylight transition zone lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
9.4.1.4 [EL12] ¹	Primary sidelighted areas ≥ 250 ft ² are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
9.4.1.5 [EL13] ¹	Enclosed spaces with daylight area under skylights and rooftop monitors > 900 ft ² are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
9.4.1.6 [EL4] ¹	Separate lighting control devices for specific uses installed per approved lighting plans.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
9.4.2 [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 checked="" type="checkbox"/> Not Applicable	
9.6.2 [EL8] 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 checked="" type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

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

90.1 (2010) Standard	Final Inspection	Complies?	Comments/Assumptions
8.7.1 [FI16] ³	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
8.7.2 [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 checked="" type="checkbox"/> Not Applicable	
9.2.2.3 [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 checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<i>See the Interior Lighting fixture schedule for values.</i>

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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COMcheck Software Version 3.9.4

Mechanical Compliance Certificate

90.1 (2010) Standard

Section 1: Project Information

Project Type: **Alteration**

Project Title : Correct Water Infiltration

Construction Site:

1500 Sullivan Road
Aurora, IL 60506

Owner/Agent:

Capital Development Board of Illinois

Designer/Contractor:

Globetrotters Engineering, Inc.
300 S. Wacker Drive
Chicago, IL 60602
(312) 922-6400

Section 2: General Information

Building Location (for weather data):

Aurora, Illinois

Climate Zone:

5a

Section 3: Mechanical Systems List

Quantity System Type & Description

- | | |
|---|---|
| 1 | E-1:

Cooling: 1 each - Hydronic Coil (Cooling), Capacity = 245 kBtu/h, Air Economizer
No minimum efficiency requirement applies
Fan System: E-1 ZONE 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Multi-Zone VAV, 6050 CFM, 7.5 motor nameplate hp

SYSTEM COMPLIANCE REQUIRED. |
| 1 | E-1:

Heating: 1 each - Hydronic or Steam Coil (Heating), Hot Water, Capacity = 96 kBtu/h
No minimum efficiency requirement applies
Fan System: E-1 ZONE 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Multi-Zone VAV, 6050 CFM, 7.5 motor nameplate hp

SYSTEM COMPLIANCE REQUIRED. |
| 1 | E-3:

Cooling: 1 each - Hydronic Coil (Cooling), Capacity = 246 kBtu/h, Air Economizer
No minimum efficiency requirement applies
Fan System: E-3 ZONE 2 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Multi-Zone VAV, 5600 CFM, 7.5 motor nameplate hp

SYSTEM COMPLIANCE REQUIRED. |
| 1 | E-3:

Heating: 1 each - Hydronic or Steam Coil (Heating), Hot Water, Capacity = 141 kBtu/h
No minimum efficiency requirement applies
Fan System: E-3 ZONE 2 -- Compliance (Motor nameplate HP method) : Passes |

Fans:
FAN 2 Supply, Multi-Zone VAV, 5600 CFM, 7.5 motor nameplate hp

SYSTEM COMPLIANCE REQUIRED.

Section 5: Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical alteration project has been designed to meet the 90.1 (2010) Standard, Chapter 8, requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

HYNEK DVORAK MECH. ENG.
Name - Title


Signature

12/12/14
Date

Section 6: Post Construction Compliance Statement

- HVAC record drawings of the actual installation and performance data for each equipment provided to the owner within 90 days after system acceptance.
- HVAC O&M documents for all mechanical equipment and system provided to the owner within 90 days after system acceptance.
- Written HVAC balancing report provided to the owner.

The above post construction requirements have been completed.

Principal Mechanical Designer-Name

Signature

Date



COMcheck Software Version 3.9.4

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 85.0% 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.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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90.1 (2010) Standard	Plan Review	Complies?	Comments/Assumptions
4.2.2,6.4. 4.2.1,6.7. 2 [PR2] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2,8.4. 1.1,8.4.1. 2,8.7 [PR6] ²	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
6.7.2.4 [PR5] ¹	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft ² .	<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)
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Section # & Req.ID	Footing / Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.3.8 [FO9] ³	Freeze protection and snow/ice melting system sensors for future connection to controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.1.4,6.4.1.5 [ME1] ²	HVAC equipment efficiency verified. Non-NAECA HVAC equipment labeled as meeting 90.1.	Efficiency:_____	Efficiency:_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
6.4.3.4.1 [ME3] ³	Stair and elevator shaft vents have motorized dampers that automatically close.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.3.4.2, 6.4.3.4.3 [ME4] ³	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.4.5 [ME39] ³	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.3.4.4 [ME5] ³	Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.9 [ME6] ¹	Demand control ventilation provided for spaces >500 ft ² and >40 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm.
6.4.3.10 [ME40] ²	Single zone HVAC systems with fan motors >=5 hp have variable airflow controls. Air conditioning equipment with a cooling capacity >=110,000 Btu/h has variable airflow controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-1.
6.4.3.10 [ME40] ²	Single zone HVAC systems with fan motors >=5 hp have variable airflow controls. Air conditioning equipment with a cooling capacity >=110,000 Btu/h has variable airflow controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-1.
6.4.3.10 [ME40] ²	Single zone HVAC systems with fan motors >=5 hp have variable airflow controls. Air conditioning equipment with a cooling capacity >=110,000 Btu/h has variable airflow controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-3.
6.4.3.10 [ME40] ²	Single zone HVAC systems with fan motors >=5 hp have variable airflow controls. Air conditioning equipment with a cooling capacity >=110,000 Btu/h has variable airflow controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-3.
6.4.4.1.1 [ME7] ³	Insulation exposed to weather protected from damage. Insulation outside of the conditioned space and associated with cooling systems is vapor retardant.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

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

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.4.1.2 [ME8] ²	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	R-_____	R-_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.3 [ME9] ²	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Piping within HVAC equipment.
6.4.4.1.4 [ME41] ³	Thermally ineffective panel surfaces of sensible heating panels have insulation \geq R-3.5.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.4.2.1 [ME10] ²	Ducts and plenums sealed based on static pressure and location.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-3.</i>
6.4.4.2.2 [ME11] ³	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-3.</i>
6.5.1,6.5.1.1,6.5.1.3 [ME12] ¹	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Mechanical Systems list for values for E-1.</i>
6.5.1,6.5.1.1,6.5.1.3 [ME12] ¹	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Mechanical Systems list for values for E-3.</i>
6.5.2.2.1 [ME50] ²	Three-pipe hydronic systems using a common return for hot and chilled water are not used.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for E-1.</i>

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

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.2.2.1 [ME50] ²	Three-pipe hydronic systems using a common return for hot and chilled water are not used.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-1.
6.5.2.2.1 [ME50] ²	Three-pipe hydronic systems using a common return for hot and chilled water are not used.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-3.
6.5.2.2.1 [ME50] ²	Three-pipe hydronic systems using a common return for hot and chilled water are not used.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	Requirement will be met. See the Mechanical Systems list for values for E-3.
6.5.2.3 [ME19] ³	Dehumidification controls provided to prevent reheating, recooling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.3.3 [ME42] ³	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for E-1.
6.5.3.3 [ME42] ³	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for E-1.
6.5.3.3 [ME42] ³	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for E-3.
6.5.3.3 [ME42] ³	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values for E-3.
6.5.4.1 [ME25] ³	HVAC pumping systems >10 hp designed for variable fluid flow.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
6.5.4.2 [ME26] ³	Reduce flow in pumping systems >10 hp. to multiple chillers or boilers when others are shut down.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for E-1.
6.5.4.2 [ME26] ³	Reduce flow in pumping systems >10 hp. to multiple chillers or boilers when others are shut down.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for E-1.
6.5.4.2 [ME26] ³	Reduce flow in pumping systems >10 hp. to multiple chillers or boilers when others are shut down.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for E-3.
6.5.4.2 [ME26] ³	Reduce flow in pumping systems >10 hp. to multiple chillers or boilers when others are shut down.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	See the Mechanical Systems list for values for E-3.

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

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.4.4.2 [ME44] ³	Hydronic heat pumps and water-cooled unitary air conditioners with pump systems >5 hp have controls or devices to reduce pump motor demand.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>
6.5.4.4.2 [ME44] ³	Hydronic heat pumps and water-cooled unitary air conditioners with pump systems >5 hp have controls or devices to reduce pump motor demand.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>
6.5.4.4.2 [ME44] ³	Hydronic heat pumps and water-cooled unitary air conditioners with pump systems >5 hp have controls or devices to reduce pump motor demand.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-3.</i>
6.5.4.4.2 [ME44] ³	Hydronic heat pumps and water-cooled unitary air conditioners with pump systems >5 hp have controls or devices to reduce pump motor demand.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	<i>See the Mechanical Systems list for values for E-3.</i>
6.5.6.1 [ME56] ¹	Exhaust air energy recovery on systems meeting Table 6.5.6.1.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.6.2 [ME31] ³	Condenser heat recovery system that can heat water to 85 °F or provide 60% of peak heat rejection is installed for preheating of service hot water in 24/7 facility, water cooled systems reject >6 MMBtu, SHW load >=1 MMBtu.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Mechanical Systems list for values for E-1.</i>
6.5.6.2 [ME31] ³	Condenser heat recovery system that can heat water to 85 °F or provide 60% of peak heat rejection is installed for preheating of service hot water in 24/7 facility, water cooled systems reject >6 MMBtu, SHW load >=1 MMBtu.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	<i>See the Mechanical Systems list for values for E-3.</i>
6.5.7.1.1 [ME32] ²	Kitchen hoods >5,000 cfm have make up air >=50% of exhaust air volume.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.7.1.2 [ME46] ³	Conditioned supply air to space with a kitchen hood shall not exceed the greater of a) supply flow required to meet space heating or cooling, or b) hood exhaust flow minus the available air transfer from available spaces.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>
6.5.7.1.2 [ME46] ³	Conditioned supply air to space with a kitchen hood shall not exceed the greater of a) supply flow required to meet space heating or cooling, or b) hood exhaust flow minus the available air transfer from available spaces.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-1.</i>

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

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.7.1.2 [ME46] ³	Conditioned supply air to space with a kitchen hood shall not exceed the greater of a) supply flow required to meet space heating or cooling, or b) hood exhaust flow minus the available air transfer from available spaces.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-3.</i>
6.5.7.1.2 [ME46] ³	Conditioned supply air to space with a kitchen hood shall not exceed the greater of a) supply flow required to meet space heating or cooling, or b) hood exhaust flow minus the available air transfer from available spaces.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. <i>See the Mechanical Systems list for values for E-3.</i>
6.5.7.1.5 [ME49] ³	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.7.2 [ME33] ¹	Fume hoods exhaust systems $\geq 15,000$ cfm have VAV hood exhaust and supply systems, direct make-up air or heat recovery.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.8.1 [ME34] ²	Unenclosed spaces that are heated use only radiant heat.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

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

90.1 (2010) Standard	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.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
10.4.1 [EL9] ²	Electric motors meet requirements where applicable.	<input checked="" 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)
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90.1 (2010) Standard	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.2 [F13] ³	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
6.4.3.2 [F120] ³	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input checked="" type="checkbox"/> Not Applicable	
6.4.3.3.1 [F121] ³	HVAC systems equipped with at least one automatic shutdown control.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.2 [F122] ³	Setback controls allow automatic restart and temporary operation as required for maintenance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.7 [F16] ³	When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.1 [F17] ³	Furnished HVAC as-built drawings submitted 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	Requirement will be met.
6.7.2.2 [F18] ³	Furnished O&M manuals for HVAC 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	Requirement will be met.
6.7.2.3 [F19] ¹	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft ² of conditioned area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.4 [F110] ¹	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
10.4.3 [F124] ²	Elevators are designed with the proper lighting, ventilation power, and standby mode.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:

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