

## Energy code review comments 3-3-15

### Page 10 (2)



**Subject:** ECC NO ANALYSIS  
**Page:** Page 10  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:43:54 PM  
**Citation:** 1 RCNY §5000-01(f)  
**Date:** 2/20/2015 6:23:57 PM  
**Author:** pwliu  
**Depth:**

1 RCNY §5000-01(f) - Incomplete submission.

Insufficient/Incomplete support documentation for:  
ECC 502/ Ashrae 90.1 Section 5 - Building Envelope  
ECC 505/Ashrae 90.1 Section 8,9 - Power and Lighting (Interior and Exterior)

Energy Code Compliance review pending until full submission is provided.



**Subject:** Re: ECC NO ANALYSIS  
**Page:** Page 10  
**Status:**  
**Citation:**  
**Date:** 3/3/2015 12:05:45 PM  
**Author:** pwliu  
**Depth:**

Insufficient Ext Opaque Wall assembly information.

PW1, Sec 10 - Indicate "Energy Model"

**Subject:** ECC Admin  
**Page:** Page 10  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:44:31 PM  
**Citation:** PW1, Sec 10  
**Date:** 2/20/2015 6:25:34 PM  
**Author:** pwliu  
**Depth:**

PW1, Sec 10 - Indicate "Energy Model"

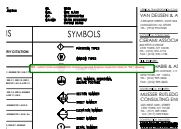
### Page 11 (4)



**Subject:** ECC Inspection format  
**Page:** Page 11  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:07:08 PM  
**Citation:** 1 RCNY §5000-01(g)(7)  
**Date:** 2/20/2015 6:20:55 PM  
**Author:** pwliu  
**Depth:**

Energy Code progress inspections and description not listed on plans (in tabular format as in this rule).

The description shall set forth the standard of construction and the inspection criteria as appropriate for the scope of work in accordance to table I or II of 1 RCNY §5000-01(h), as applicable; simple reference to the citation provided, without such description, is not sufficient.



**Subject:** ECC Admin  
**Page:** Page 11  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:07:05 PM  
**Citation:** TR8  
**Date:** 2/20/2015 6:21:27 PM  
**Author:** pwliu  
**Depth:**

TR8 - submit initial and dated form matching required Progress Inspection listed on "EN-" drawing.



**Subject:** ECC Admin "EN"  
**Page:** Page 11  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:06:53 PM  
**Citation:** 1 RCNY §5000-01(g)  
**Date:** 2/20/2015 6:22:40 PM  
**Author:** pwliu  
**Depth:**

1 RCNY §5000-01(g) - All energy code related data (including prof. statement, TR8 inspections, EN-1 form and references to supporting data) should be grouped on the sheet (s) labeled "EN" in drawing set. Rename to "EN"

1) Missing EN-1 form for Energy Model.

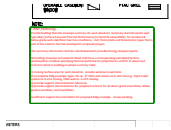


**Subject:** ECC Professional Statement  
**Page:** Page 11  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:06:45 PM  
**Citation:** ECC 101.5.3.1  
**Date:** 2/20/2015 6:22:37 PM  
**Author:** pwliu  
**Depth:**

ECC 101.5.3.1 - Professional statement missing on plans. States compliance with "2011 New York City Energy Conservation Code".

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## Page 12 (1)



**Subject:** Building Enevelop Thermal Summary  
**Page:** Page 12  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:44:37 PM  
**Citation:** 1 RCNY §5000-01(g)  
**Date:** 2/20/2015 6:17:50 PM  
**Author:** pwliu  
**Depth:**

1 RCNY §5000-01(g)-  
Provide building thermal envelope summary for each elevation. Summary shall document wall type label, Surface Area and Thermal Performance (U-factor/R-value/SHGC) for all above & below grade wall, slab/floor heat loss conditions, roof, floors/slabs and fenestration types that is part of the exterior thermal envelope for proposed project.

The summary information shall be coordinated with provided Energy Analysis reports.

All building envelope components listed shall have a corresponding wall detail/section, window/door schedule specifying thermal performance properties to confirm R-values and U-factors listed in building envelope summary table.

- 1) missing Surface area for each elevation. provide window to wall ratio.
- 2) incomplete bldg envelope types. for ex. 8" CMU wall shown on A-310 missing. Hybrid wall system on A-312 missing, CMU wall on A-315 missing.
- 3) provide support documentation reference
- 4) provide support documentation for proposed U-factor for all above grade assemblies, below grade assemblies, roof assemblies.

insufficient support documentation for proposed bldg envelope. review pending.



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**Subject:** Re: Building Enevelop Thermal Summary  
**Page:** Page 12  
**Status:**  
**Citation:**  
**Date:** 3/3/2015 12:22:34 PM  
**Author:** pwliu  
**Depth:**

A-200 (P.54) U-factor calculation & Surface Areas not coordinated.

- A-401 (p.103) detail shows R-13 cavity. clarify detail, R-value of rockwool insulation for wall type 16 and 17.

- A315 CMU + Metal Panel

- A-320 "Hybrid Wall System"

-Mass wall shown on A-319/A-320, not in areas A-200.

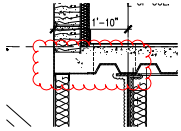
-A-310 CMU wall - coordinate with A-200 U-factor calculation.

Support documentation does not correspond to U-factor calculation on A-200.

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Page 13 (2)

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**Subject:** Cloud  
**Page:** Page 13  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:32:17 PM  
**Citation:**  
**Date:** 2/20/2015 4:21:45 PM  
**Author:** pwliu  
**Depth:**

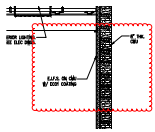
exposed slab edge



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**Subject:** Re: Cloud  
**Page:** Page 13  
**Status:**  
**Citation:**  
**Date:** 3/3/2015 12:31:18 PM  
**Author:** pwliu  
**Depth:**

exposed slab edge condition for this CMU wall type on North Elevation. Derate heat loss at slab for wall type.



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**Subject:** Cloud  
**Page:** Page 13  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:32:21 PM  
**Citation:**  
**Date:** 2/20/2015 4:21:59 PM  
**Author:** pwliu  
**Depth:**

CMU walls



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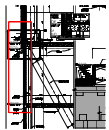
**Subject:** Re: Cloud  
**Page:** Page 13  
**Status:**  
**Citation:**  
**Date:** 3/3/2015 12:32:09 PM  
**Author:** pwliu  
**Depth:**

missing detail

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Page 14 (1)

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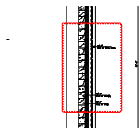
**Subject:** Cloud  
**Page:** Page 14  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:33:41 PM  
**Citation:**  
**Date:** 2/20/2015 4:26:05 PM  
**Author:** pwliu  
**Depth:**

wall type missing in Opaque bldg envelope parameters.

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Page 15 (1)

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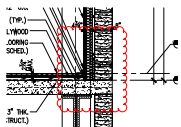
**Subject:** Cloud  
**Page:** Page 15  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:33:57 PM  
**Citation:**  
**Date:** 2/20/2015 4:28:22 PM  
**Author:** pwliu  
**Depth:**

different cmu wall type missing in bldg envelope summary on A-200.

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Page 16 (1)

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**Subject:** Cloud  
**Page:** Page 16  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:34:20 PM  
**Citation:**  
**Date:** 2/20/2015 4:34:57 PM  
**Author:** pwliu  
**Depth:**

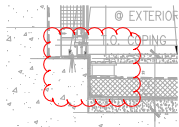
Wall type missing on Bldg Envelope parameters on A-200.

Wall type at slab edge missing on Bldg Envelope parameter table on A-200

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Page 17 (1)

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**Subject:** Cloud  
**Page:** Page 17  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:44:44 PM  
**Citation:**  
**Date:** 2/20/2015 4:35:56 PM  
**Author:** pwliu  
**Depth:**

thermal bridge



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**Subject:** Re: Cloud  
**Page:** Page 17  
**Status:**  
**Citation:**  
**Date:** 3/3/2015 12:43:08 PM  
**Author:** pwliu  
**Depth:**

derate for exposed slab edge if detail unchanged.  
Include in envelope summary on A-200.

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Page 18 (2)

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**Subject:** Deficient Support Documentation  
**Page:** Page 18  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:43:19 PM  
**Citation:** 1 RCNY §5000-01(g) (1)  
**Date:** 2/20/2015 4:37:15 PM  
**Author:** pwliu  
**Depth:**

1 RCNY §5000-01(g) (1) - Specify thermal performance for proposed construction.

For all details/sections provided throughout drawing set:

specify R-values, insulation type and thickness to match provided Energy Analysis.



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**Subject:** Cloud  
**Page:** Page 18  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:38:04 PM  
**Citation:**  
**Date:** 2/20/2015 4:38:26 PM  
**Author:** pwliu  
**Depth:**

note: R-value of insulation should be derated for framing since insulation is installed within frames.

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Page 19 (1)

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**Subject:** Deficient Support Documentation  
**Page:** Page 19  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:45:00 PM  
**Citation:** 1 RCNY §5000-01(g) (1)  
**Date:** 2/20/2015 4:49:38 PM  
**Author:** pwliu  
**Depth:**

1 RCNY §5000-01(g) (1) - Specify thermal performance for proposed construction.

For all details/sections provided throughout drawing set:

specify R-values, insulation type and thickness to match provided Energy Analysis.

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Page 20 (9)



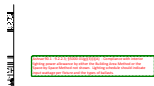
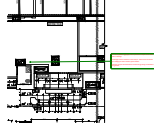



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**Subject:** Light Exterior Controls  
**Page:** Page 20  
**Status:** Rejected set by pwliu on 3/3/2015 at 12:50:07 PM  
**Citation:** ECC 505.2.4 / Ashrae 90.1 - 9.4.1.3  
**Date:** 2/20/2015 5:14:31 PM  
**Author:** pwliu  
**Depth:**

ECC 505.2.4 / Ashrae - 9.4.1.3 - Drawings do not indicate photosensor, time or astronomical controls for exterior lighting.

Specify in Light Schedule

	<b>Subject:</b> Re: Light Exterior Controls <b>Page:</b> Page 20 <b>Status:</b> <b>Citation:</b> <b>Date:</b> 3/3/2015 12:49:47 PM <b>Author:</b> pwliu <b>Depth:</b>	clarify location of proposed BMS system
	<b>Subject:</b> Lighting - Exit Signs <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> ECC 505.4 / Ashrae 90.1 - 9.4.3 <b>Date:</b> 2/20/2015 5:14:31 PM <b>Author:</b> pwliu <b>Depth:</b>	ECC 505.4 / Ashrae 90.1- 9.4.3 - Show compliance with internally illuminated exit signs of maximum of 5 watts per side.  Specify in Light Schedule
	<b>Subject:</b> 90.1 Light Schedule <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> Ashrae 90.1 - 9.2.2.3 <b>Date:</b> 2/20/2015 5:14:31 PM <b>Author:</b> pwliu <b>Depth:</b>	Ashrae 90.1 - 9.2.2.3; §5000-01(g)(3)(i)(A) - Compliance with interior lighting power allowance by either the Building Area Method or the Space-by-Space Method not shown. Lighting schedule should indicate input wattage per fixture and the types of ballasts.
	<b>Subject:</b> ECC Multi-family <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> ECC 505.5.2; §5000-01(g)(3)(i)(B) <b>Date:</b> 2/20/2015 5:19:43 PM <b>Author:</b> pwliu <b>Depth:</b>	ECC 505.5.2; §5000-01(g)(3)(i)(B) -Values provided in Analysis do not match those on drawings.  Provide Light Fixture schedule to match analysis. Schedule should indicate input wattage per fixture and the types of ballasts.  Insufficient support documentation to confirm energy savings as indicated in Energy Model.
	<b>Subject:</b> Auto Lighting controls >5000sf <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> ECC 505.2.2.2 <b>Date:</b> 2/20/2015 5:19:14 PM <b>Author:</b> pwliu <b>Depth:</b>	ECC 505.2.2.2 - Buildings larger than 5,000 SF shall be equipped with an automatic control device to shut off lighting in those areas. Provide automatic controls per code reference.
	<b>Subject:</b> Occ Sensors Lighting controls NYC req <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> ECC 505.2.2.2 NYC <b>Date:</b> 2/20/2015 5:19:16 PM <b>Author:</b> pwliu <b>Depth:</b>	ECC 505.2.2.2 - Provide Occupancy Sensors for the following spaces where applicable: 1) classrooms 2) conference/meeting rooms 3) employee lunch and break rooms; 4) offices smaller than 200sf exception: offices small than 200sf with photosensor lighting controls.
	<b>Subject:</b> ECC Light Schedule <b>Page:</b> Page 20 <b>Status:</b> Accepted set by pwliu on 3/3/2015 at 12:49:56 PM <b>Citation:</b> ECC 505.5.2; §5000-01(g)(3)(i)(A) <b>Date:</b> 2/20/2015 5:14:31 PM <b>Author:</b> pwliu <b>Depth:</b>	ECC 505.5.2; §5000-01(g)(3)(i)(A) - Compliance with lighting power density (Watts per square foot) as per Table 505.5.2 not shown. Lighting schedule should indicate input wattage per fixture and the types of ballasts.

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**Subject:** Power & Lights

**Page:** Page 20

**Status:** Accepted set by pwliu on 3/3/2015 at 12:49:56 PM

**Citation:** ECC 505.7

**Date:** 2/20/2015 5:19:49 PM

**Author:** pwliu

**Depth:**

ECC 505.7 - Specify separate electrical meter or sub-meter for each dwelling unit.

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**Subject:** ECC Light Schedule & Narrative

**Page:** Page 20

**Status:** Accepted set by pwliu on 3/3/2015 at 12:49:56 PM

**Citation:** §5000-01(g)

**Date:** 2/20/2015 5:34:55 PM

**Author:** pwliu

**Depth:**

§5000-01(g) - Provide Lighting schedule, indicate watt per lamp, lamp per fixture and system input per fixture such that the drawing support the energy analysis. Where applicable, indicate high efficacy lamp, provide lumens per watt.

Mandatory lighting and power controls shall be shown and described, and a narrative provided describing their function and operation.

## Page 21 (2)

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Item	Description	Quantity	Unit	Material	Notes
1	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
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3	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
4	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
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7	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
8	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
9	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	
10	PIPE INSULATION	100	FT	1/2" X 1/2" X 1/2"	

**Subject:** 90.1 - pipe insulation

**Page:** Page 21

**Status:** Accepted set by pwliu on 3/3/2015 at 12:54:41 PM

**Citation:** Ashrae 90.1 - 6.4.4.1.3

**Date:** 2/20/2015 5:37:16 PM

**Author:** pwliu

**Depth:**

Ashrae 90.1 - 6.4.4.1.3 - HVAC piping shall be thermally insulated per table 6.8.3



**Subject:** Ashrae 90.1 Mechanical  
**Page:** Page 21  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:53:32 PM  
**Citation:**  
**Date:** 2/20/2015 5:37:13 PM  
**Author:** pwliu  
**Depth:**

Mechanical Equipment Compliance comments:

Provide Notes for the following:

Ashrae 90.1 - 6.4.2 - Drawings do not address heating and cooling load calculations for deriving correct equipment size.

Ashrae 90.1 - 6.4.4.1.1 - Drawings shall indicate the type of protection materials used over outdoor insulated areas / pipes.

Ashrae 90.1 - 6.4.3 - Drawings do not specify all applicable required controls including, but not limited to, thermostatic zone control, deadband, off-hour, ventilation systems, heat pump auxiliary, humidification/ dehumidification, snow melt and shutdown controls.

Ashrae 90.1 - 6.4.4.2 - Drawings do not address duct and plenum leakages and sealing.

Ashrae 90.1 - 6.4.3.4 - Mechanical ventilation intakes and exhausts shut off dampers not identified.

Ashrae 90.1 - 6.4.3.4.1 - Motorized dampers are required for both stairs and elevator shaft.

Ashrae 90.1 - 6.4.4.1.2 - Drawings do not address duct and plenum insulation.

Ashrae 90.1 - 6.4.4.1.3 - HVAC piping not in compliance with thermal insulation.

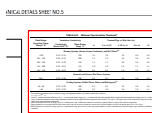
Ashrae 90.1 - 6.5.1, 6.5.2 - Requirements for economizers and hydronic system controls for mechanical system not fully addressed.

Ashrae 90.1 - 6.5.3 - Drawings do not indicate that fan system motors exceeding 5 horsepower are within power limitations and are no larger than the first available motor size greater than fan brake horsepower.

Ashrae 90.1 - 6.7.2.4 - Drawings do not include detailed instructions for HVAC systems commissioning.

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## Page 22 (2)



**Subject:** 90.1 - pipe insulation  
**Page:** Page 22  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:54:41 PM  
**Citation:** Ashrae 90.1 - 6.4.4.1.3  
**Date:** 2/20/2015 5:37:16 PM  
**Author:** pwliu  
**Depth:**

Ashrae 90.1 - 6.4.4.1.3 - HVAC piping shall be thermally insulated per table 6.8.3



**Subject:** Ashrae 90.1 Mechanical  
**Page:** Page 22  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:53:58 PM  
**Citation:**  
**Date:** 2/20/2015 6:14:48 PM  
**Author:** pwliu  
**Depth:**

Mechanical Equipment Compliance comments:

Provide Notes for the following:

Ashrae 90.1 - 6.4.2 - Drawings do not address heating and cooling load calculations for deriving correct equipment size.

Ashrae 90.1 - 6.4.4.1.1 - Drawings shall indicate the type of protection materials used over outdoor insulated areas / pipes.

Ashrae 90.1 - 6.4.3 - Drawings do not specify all applicable required controls including, but not limited to, thermostatic zone control, deadband, off-hour, ventilation systems, heat pump auxiliary, humidification/ dehumidification, snow melt and shutdown controls.

Ashrae 90.1 - 6.4.4.2 - Drawings do not address duct and plenum leakages and sealing.

Ashrae 90.1 - 6.4.4.1.2 - Drawings do not address duct and plenum insulation.

Ashrae 90.1 - 6.4.4.1.3 - HVAC piping not in compliance with thermal insulation.

Ashrae 90.1 - 6.5.1, 6.5.2 - Requirements for economizers and hydronic system controls for mechanical system not fully addressed.

Ashrae 90.1 - 6.5.3 - Drawings do not indicate that fan system motors exceeding 5 horsepower are within power limitations and are no larger than the first available motor size greater than fan brake horsepower.

Ashrae 90.1 - 6.7.2.4 - Drawings do not include detailed instructions for HVAC systems commissioning.

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## Page 23 (1)



**Subject:** 90.1 Missing Efficiency Values.  
**Page:** Page 23  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:54:48 PM  
**Citation:** Ashrae 90.1 - 6.4.1  
**Date:** 2/20/2015 6:05:47 PM  
**Author:** pwliu  
**Depth:**

Ashrae 90.1 - 6.4.1 - Specify equipment efficiency in Equipment schedule. Values must meet or exceed code minimum requirements.

Table 6.8.1A - Air Conditioners and Condensing Units

Table 6.8.1B - Heat Pumps

Table 6.8.1C - Water Chilling Packages

Table 6.8.1D - PTAC and PTHP

Table 6.8.1E - Furnaces, Duct Furnaces, and Unit Heaters

Table 6.8.1F - Boilers

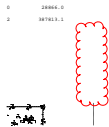
Table 6.8.1G - Heat Rejection Equipment





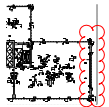


**Subject:** Image  
**Page:** Page 25  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:57:44 PM  
**Citation:**  
**Date:** 2/20/2015 5:59:28 PM  
**Author:** pwliu  
**Depth:**



**Subject:** Cloud  
**Page:** Page 25  
**Status:** Cancelled set by pwliu on 3/3/2015 at 12:58:34 PM  
**Citation:**  
**Date:** 2/20/2015 5:59:38 PM  
**Author:** pwliu  
**Depth:**

Ashrae 90.1 - Per Table 11.3.1(5)(c) Column B: If the fenestration area for new buildings exceeds the maximum allowed by Section 5.5.4.2, the area shall be reduced proportionally along each exposure until the limit set in Section 5.5.4.2 is met.



**Subject:** Cloud  
**Page:** Page 25  
**Status:** Accepted set by pwliu on 3/3/2015 at 12:58:44 PM  
**Citation:**  
**Date:** 2/20/2015 6:00:13 PM  
**Author:** pwliu  
**Depth:**

confirm window to wall ratio for east elevation

## Page 26 (1)

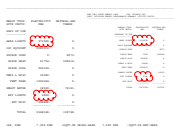


**Subject:** Text Box  
**Page:** Page 26  
**Status:** Accepted set by pwliu on 3/3/2015 at 1:01:44 PM  
**Citation:**  
**Date:** 2/20/2015 5:30:45 PM  
**Author:** pwliu  
**Depth:**

Energy Model Systems comments:

- 1.Code Case: Verify water-cooled systems (amenity spaces) are mapped against water-cooled condensers using ASHRAE 90.1-2007 Table 11.3.2
- 2.Design & Code Case: SV-A report for PTACs shows a Heating-EIR, please clarify.
- 3.Design & Code Case: Explain why DHW systems are not identically modeled – electric load in the design case and not in the baseline
- 4.Design & Code Case: Reduce unmet hour difference to 50 hours or less.
- 5.Design & Code Case: Provide PV-A or similar report showing boiler sizing and efficiency

## Page 27 (1)



**Subject:** Cloud  
**Page:** Page 27  
**Status:** Accepted set by pwliu on 3/3/2015 at 1:02:08 PM  
**Citation:**  
**Date:** 2/20/2015 5:18:44 PM  
**Author:** pwliu  
**Depth:**

Provide support documentation for energy savings for Interior and Exterior lighting.