



217 West 57th Street
New York, NY
Energy Code Compliance Objections Response
09/18/2015

General note: The entire project is being re-filled to the DOB as a result of some plan and envelope / façade changes and other project revisions. As a result, some of the information listed in the already approved below responses has changed (curtain wall vision and opaque areas, curtain wall performance, etc.). Where this is the case, the revision has been noted in the below summary of comments. Each previous and new DOB comment has been listed below, with the previously approved comments being greyed out and the new DOB comments listed separately. All comment responses are also provided, and where the comment response for a previously approved comment has been revised based on design changes this has been noted below.

1. PREVIOUS COMMENT - Energy Code Review Comment (Page 1, Page 3 (drawing A-801)):

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.

Insufficient support documentation for NYCECC review.

Comment Response:

Previously resolved (07-07-2015), however the updated tables below and refiled architectural drawing, A090 have been revised to reflect the latest curtain wall design for the refiled plans. The average construction U-values match the average U-values in the energy model and in the energy model form on the EN-100 drawing as can be seen in the below summary of the average U-value resulting from the spec. The performance values of the purchased curtain wall has been provided in Appendix A1a and A1b to show the actual submitted product data.

Envelope areas from architectural drawing take-offs match closely the output from the energy model report (LV-D). Small discrepancies between model output and architectural take-offs are expected based on the eQUEST modelling input procedure. All areas are within ~1% of the LV-D report and Architectural take-offs, well within standard modelling protocol.

The building has used a performance spec; the U-values and SHGC listed on the documents are as per the performance specification (included as an appendix to this comment response) and as provided on drawing A-090.

Summary	MAT'L	AREA	% Of Total	U-VALUE	SHGC
A	GLAZING VISION (IGU)	259,737	36%	0.38	0.28
B	SPANDREL (IGU)	195,607	27%	0.17	-
C	ARCH METAL PANEL (INSULATED)	165,133	23%	0.05	-
D	PODIUM METAL PANEL (INSULATED)	2,747	0%	0.07	-
E	AIR WELLLOUVER (NON-ACTIVE)	4,570	1%	0.10	-
F	LOUVER (ACTIVE)	5,834	1%	12.00	-
G	PODIUM CURVED LOUVER	7,083	1%	0.22	-
H	RETAIL GLAZING VISION (CURVED)	25,759	4%	0.55	0.52
J	RETAIL GLAZING VISION (I.G.U.)	1,700	0%	0.31	0.6
K	RETAIL GLAZING VISION (STORE FRONT)	2,886	0%	0.95	0.8
L1	ADJ BUILDING WALL AREA	6,647	1%	0.35	-
L2	ADJ BUILDING WALL AREA	-	0%	0.63	-
L3	ADJ BUILDING WALL AREA	17,963	2%	0.43	-
L4	ADJ BUILDING WALL AREA	14,331	2%	0.35	-
L5	ADJ BUILDING WALL AREA	1,056	0%	0.27	-
L6	ADJ BUILDING WALL AREA	748	0%	0.20	-
J7	ADJ BUILDING WALL AREA	4,591	1%	0.09	-
M	LANDMARK RECONSTRUCTION WALL AREA	2,287	0%	0.08	-
N	LANDMARK RECONSTRUCTION WINDOW AREA	97	0%	0.95	0.8
P	LANDMARK WALL AREA	4,858	1%	0.50	-
Q	LANDMARK WINDOW AREA	3,139	0%	0.95	0.8
R	BELOW GRADE	58,252	100%	N/R/	-

Roof	MAT'L	AREA	U-VALUE	SHGC
S	Roof (RT-01 & RT-02)	45,691	0.05	-
T	Soffit (Insulated)	4,555	0.05	-
U	Slab on Grade)	40,704	-	-

Totals	AREA	AVG U-VALUE	% of total	AVG SHGC
Total Glass	293,318	0.41	40.4%	0.31
Total Above-Grade Wall	433,455	0.31	59.6%	-
Total Below-Grade Wall	58,252		1	-
Total Roof	45,691	0.05	1	-

2. PREVIOUS COMMENT - Energy Code Review Comment (Page 1):

Per energy model report proposed project has 38% glazing. Provide sufficient support documentation to match Energy Analysis. Please refer to documentation requirements per 1 RCNY §5000-01.

Comment Response:

Previously resolved (07-07-2015), however the updated tables above and refiled architectural drawing, A090 have been revised to reflect the latest glazing percentages for the refiled plans. The proposed design model shows 40.4% window area, and the baseline design model shows 40% window area.

Architectural drawing A-090 has been updated to show detailed area breakdowns of the wall and window

areas. These areas are consistent with the modelled areas seen in the LV-D output report. The envelope areas have been updated to match the updated filing set, and now show 39% glazing in both the A-090 backup and the energy model.

3. PREVIOUS COMMENT - Energy Code Review Comment (Page 2, Page 3 (drawing G-001)):

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

Missing EN dwg: on EN dwg provide the following:

1) EN-1 form for energy model

2) tr8 inspections

3) professional statement

Provide the following support documentation for review with Energy Model

4) complete support documentation for building envelope as mark-up

5) lighting connected power information to support savings as indicated in energy model.

6) completed MEP drawings showing proposed equipment with efficiency ratings as shown in energy model.

Energy Code Compliance review pending until full submission is provided.

Comment Response:

Drawing EN-100 has been submitted. EN-100 drawing includes signed EN-1 form, tr8 inspections list, and professional statement.

In addition, the envelope supporting documentation has been provided as part of the Architectural Drawings A-090, as well as the attached section of the Curtain Wall Specifications as seen in the appendix of this report.

The lighting power density calculations and lighting fixture schedules have been provided as supporting information to the lighting connected power load.

The Mechanical drawings show the specified efficiency ratings of the equipment at rated conditions and at operating conditions where available. The scheduled efficiencies are as modelled, except where the modelled efficiency input is adjusted to separate fan power as required by ASHRAE 90.1-2007 section 11.3.2 c.

Comment 3.1: Verify all inspections on drawing checked "yes" match TR8

Comment 3.1 Response: Updated EN drawing matches filed TR8.

Comment 3.2: ECC 505- Electrical Power and Lighting Systems

Provide notes and narratives where applicable on the drawing set to show compliance with all mandatory provisions for interior and exterior fixtures, lighting controls, sensors and dimming systems.

For non-public, residential portions of this building, note compliance by way of ECC 505.5.3. Provide a note to specify min. 50% high efficacy lamps in construction drawings and state compliance on "EN" drawing.

Comment 3.2 Response:

Notes have been added to the electrical lighting drawings to clarify the specific lighting control requirements of energy code.

The comment referencing non-public residential section refers to NYC ECC 505.5.3. We believe this to be a requirement specific to the NYC ECC 2011; and not applicable under the ASHRAE 90.1-2007 (with NYC modifications), performance path, as the building is following. In addition, the residential area lighting has been modelled according to the ASHRAE 90.1-2007 Section 11 requirement for Multi-family LPD which is in line with NYC ECC 505.5.2, which is the primary alternative to NYC ECC 505.5.3.

4. PREVIOUS COMMENT - Energy Code Review Comment (Page 3 (drawing A-801)):

ECC 502.4 - Drawings do not specify mandatory provisions for air leakage, including where applicable, outdoor air intake and exhaust dampers, loading dock weatherseals, vestibules and recessed lighting seals where lighting is in the thermal envelope. Provide notes.

Comment Response:

Air infiltration requirements have been included in specifications. The infiltration requirements have been

added as notes to drawing A-021.

5. PREVIOUS COMMENT - Energy Code Review Comment (Page 3 (drawing A-801)):

ECC 502.4.2 Curtain wall, storefront glazing and commercial-glazed swinging entrance doors and revolving doors shall be tested for air leakage at 1.57 pounds per square foot (psf) (75 Pa) in accordance with ASTM E283. For curtain walls and storefront glazing, the max. air leakage rate shall be 0.3 cubic foot per minute per square foot (cfm/ft²) (5.5 m³/h x m²) of fenestration area. For commercial glazed swinging entrance doors and revolving doors, the maximum air leakage rate shall be 1.00 cfm/ft² (18.3 m³/h x m²) of door area when tested in accordance with ASTM E 283. Provide specification.

Comment Response:

Air infiltration requirements have been included in specifications. The infiltration requirements have been added as notes to drawing A-021.

6. PREVIOUS COMMENT - Energy Code Review Comment (Page 4 (drawing A-801)):

ECC 502.4.1 Air leakage of window/door assemblies shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and labeled and certified by the manufacturer and shall not exceed 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²). Provide Notes.

Comment Response:

Air infiltration requirements have been included in specifications. The infiltration requirements have been added as notes to drawing A-021.

7. PREVIOUS COMMENT - Energy Code Review Comment (Page 4 (drawing A-802)):

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

For all exterior envelope

details/sections/assemblies provided throughout drawing set:

specify R-values, insulation type & thickness, metal/wood stud size and spacing, and other pertinent thermal properties to match provided Energy Analysis. Derate for thermal bridging where applicable.

Comment Response:

The building envelope performance spec U-values and SHGC are listed on the documents (A-090) and in the specification sections provided as an appendix to this comment response document.

8. PREVIOUS COMMENT - Energy Code Review Comment (Page 4 (drawing A-802)):

ASHRAE 90.1-2010 Appendix A1.1 – Use Pre-calculated assembly U-factors, C-factors and heat capacities for typical construction assemblies are included in Sections A2 through A8. These values shall be used for all calculations unless otherwise allowed by Section A1.2

Comment Response:

Appendix A1.1 has been used to determine the U-values of the concrete wall sections as per the below summary. All other envelope areas are based on a performance specification as per the above.

From Table A3.1A – CMU with cores filled with insulation:

- 8" CMU grouted with 4" insulation = R 20: U-0.35
- 12" CMU grouted with 4" insulation = R 20: U-0.35

Extrapolated from Table A3.1B – Density 144 lb/ft³ :

- 1'0" Concrete – U-0.63
- 1'-8" Concrete – U-0.43
- 2' Concrete – U-0.35
- 2'-6" Concrete – U-0.27
- 3' Concrete – U-0.20
- 4'-6" Concrete – U-0.09

9. PREVIOUS COMMENT - Energy Code Review Comment (Page 4 (drawing A-803)):

1 RCNY §5000-01(g) (1) - Specify thermal properties for proposed construction. For all exterior envelope details/sections/assemblies provided throughout drawing set:
specify R-values, insulation type & thickness, metal/wood stud size and spacing, and other pertinent thermal properties to match provided Energy Analysis. Derate for thermal bridging where applicable.

Comment Response:

The building envelope performance spec U-values and SHGC listed on the documents (A-090) are as per the performance specification. Details of the wall sections can be found in the A-800 series drawings submitted to DOB.

COMMENT 9.1: On all detail sheets, (A-800 series) where insulation is indicated as part of the thermal envelope, provide notes or a schedule showing insulation type, thickness and R-value to match values in Energy Analysis.

COMMENT 9.1 RESPONSE:

Information and notes regarding insulation thickness and performance have been added to all applicable drawings in A-800 series

10. PREVIOUS COMMENT - Energy Code Review Comment (Page 4 (drawing A-802)):

ASHRAE 90.1-2010 Appendix A1.1 – Use Pre-calculated assembly U-factors, C-factors and heat capacities for typical construction assemblies are included in Sections A2 through A8. These values shall be used for all calculations unless otherwise allowed by Section A1.2

Comment Response:

Appendix A1.1 has been used to determine the U-values of the concrete wall sections as per the summary provided above. All other envelope areas are based on a performance specification as per the above.

JULY 2015 REVIEW - NEW COMMENTS:

11. Energy Code Review Comment:

4.2 watts/sq.ft. LPD is maximum for jewelry, crystal, china etc. (limited area within larger retail space)
Design of entire retail space is TBD and should be modeled in Baseline Design at reduced LPD of 1.7 wt./sq.ft. per Table 9.6.1

COMMENT RESPONSE: LPD for Baseline and Proposed retail spaces has been reduced to 1.7 w/sf, per ASHRAE 90.1-2007 Table 9.6.1. The updated model results and outputs reflect this change.

12. Energy Code Review Comment:

Misc. equipment value seems high. Verify Baseline value and provide specification to support values indicated.

COMMENT RESPONSE: EPD for Baseline and Proposed retail spaces has been reduced to 1.0 w/sf to represent more conservative estimate. The updated model results and outputs reflect this change.

13. Energy Code Review Comment:

Provide revised PSE, BEPS, ESP, etc. reports showing modeled outputs with and without Micro turbine variable. Indicate natural gas cost as separate line item if micro turbine reduction is applicable.

COMMENT RESPONSE: All reports for model with and without Micro-turbine variable have been included in SIM file outputs.

14. Energy Code Review Comment:

Label all pumps and Plant equipment with similar title (or keyed reference) to coordinate Baseline units to Proposed units.

COMMENT RESPONSE: Baseline Pumps have been labeled to coordinate more clearly. See below for a key of

proposed/baseline pump naming / comparisons. Plant equipment for proposed design has been labeled according to actual equipment tag, and baseline equipment has been revised to describe loop and areas served.

Proposed	Baseline
Penthouse CHW Loop	PCHW Loop
Retail CHW Loop	Retail PCW Loop
Res PCW Loop	Res PCW Loop
__SCW 90 Loop	__SCW 90 Loop
__SCW 67 Loop	__SCW 67 Loop
__SCW 46 Loop	__SCW 46 Loop
Upper Res PHW Loop	Upper Res PHW Loop
__SHW FTR 90 Loop	Upper DHW Res Loop
__SHW DHW 90 Loop	
__SHW FTR 67 Loop	
__SHW DHW 67 Loop	
__SHW FTR 46 Loop	
__SHW DHW 46 Loop	
Lower Res PHW	Lower Res PHW Loop
__SHW FTR 11 Loop	Lower DHW Res Loop
__SHW DHW 11 Loop	
__SHW DHW 7 Loop	
Retail PHW Loop	Retail PHW Loop
Retail Elec DHW Loop	Retail DHW Loop

15. Energy Code Review Comment:
Flow rate does not match schedule

COMMENT RESPONSE: Flow rate for proposed design cooling towers is now assigned as 2,000 gpm, as scheduled. The updated model results and outputs reflect this change.

16. Energy Code Review Comment:
Outside air should match Baseline. Verify that all Proposed outdoor air flow (cfm) values match Baseline design.

COMMENT RESPONSE: Proposed design outdoor airflow rates are consistent with baseline outdoor airflow rates for each air system. This can be verified in the SV-A output reports for baseline and proposed. A summary of total OA for each is seen below:

Proposed				Baseline				Matches?
System Name	Supply CFM	OA CFM	OA %	System Name	Supply CFM	OA %	OA CFM	
SC2 (Retail)	36,181	8,736	24%	SC2 (Retail)	31,394	28%	8,736	yes
SC1 (Retail)	38,332	10,252	27%	SC1 (Retail)	36,843	28%	10,252	yes
Cellar (Retail)	36,665	9,386	26%	Cellar (Retail)	47,482	20%	9,386	yes
Ground (Retail)	62,581	8,495	14%	Ground (Retail)	75,076	11%	8,495	yes
1M (Retail)	39,821	9,455	24%	1M (Retail)	38,701	24%	9,455	yes
2 (Retail)	56,791	9,936	17%	2 (Retail)	59,964	17%	9,936	yes

3-4 (Retail)	126,782	19,872	16%	3-4 (Retail)	172,952	11%	19,872	yes
5 (Retail)	72,208	9,936	14%	5 (Retail)	63,153	16%	9,936	yes
HP Low Res	191,985	-	0%	HP Low Res	193,996	0%	-	yes
HP Low Mid Res	155,487	-	0%	HP Low Mid Res	157,869	0%	-	yes
HP Upp Mid Res	160,895	-	0%	HP Upp Mid Res	164,047	0%	-	yes
HP Upper Res	173,360	-	0%	HP Upper Res	178,491	0%	-	yes
AC-SC-3-1	550	385	70%	AC-SC-3-1	551	70%	385	yes
AC-SC-3-2	1,600	-	0%	AC-SC-3-2	1,613	0%	-	yes
AC-SC-3-3	550	385	70%	AC-SC-3-3	552	70%	385	yes
AC-SC-3-4	6,000	3,600	60%	AC-SC-3-4	4,539	79%	3,600	yes
AC-SC-2-1	800	430	54%	AC-SC-2-1	802	54%	430	yes
AC-SC-2-2	4,000	3,520	88%	AC-SC-2-2	4,016	88%	3,520	yes
AC-C-1	3,000	750	25%	AC-C-1	3,003	25%	750	yes
AC-C-2 & AC-C-3	1,100	880	80%	AC-C-2 & AC-C-3	880	100%	880	yes
AC-1-1	7,000	7,000	100%	AC-1-1	7,000	100%	7,000	yes
AC-6-1	13,800	-	0%	AC-6-1	12,774	0%	-	yes
AC-6-2	1,700	850	50%	AC-6-2	1,135	75%	850	yes
AC-7-1	1,650	975	59%	AC-7-1	987	99%	975	yes
AC-7-2	1,600	960	60%	AC-7-2	960	100%	960	yes
AC-7-3	2,000	-	0%	AC-7-3	1,107	0%	-	yes
AC-7-4	15,000	15,000	100%	AC-7-4	15,000	100%	15,000	yes
AC-7-5	13,000	13,000	100%	AC-7-5	13,000	100%	13,000	yes
AC-9-2	2,000	-	0%	AC-9-2	1,193	0%	-	yes
AC-9-1 (pool)	10,000	1,750	18%	AC-9-1 (pool)	10,009	17%	1,750	yes
AC-27-1	3,000	-	0%	AC-27-1	2,846	0%	-	yes
AC-46-1	3,000	-	0%	AC-46-1	2,827	0%	-	yes
AC-67-1 & AC-67-2	7,000	3,520	50%	AC-67-1 & AC-67-2	5,677	62%	3,520	yes
AC-95-1	5,500	-	0%	AC-95-1	5,506	0%	-	yes
AC-95-2	11,000	-	0%	AC-95-2	7,698	0%	-	yes
AC-96-1 & AC-96-2	24,000	-	0%	AC-96-1 & AC-96-2	29,160	0%	-	yes
RCS-11-1	3,000	3,000	100%	RCS-11-1	3,000	100%	3,000	yes
RCS-26-1	3,000	3,000	100%	RCS-26-1	3,000	100%	3,000	yes
RCS-26-2	3,000	3,000	100%	RCS-26-2	3,000	100%	3,000	yes
RCS-45-1	3,750	3,750	100%	RCS-45-1	3,750	100%	3,750	yes
RCS-92-1	4,000	4,000	100%	RCS-92-1	4,000	100%	4,000	yes
ERU-11-1	14,500	14,500	100%	ERU-11-1	14,500	100%	14,500	yes
ERU-27-1	10,000	10,000	100%	ERU-27-1	10,000	100%	10,000	yes
ERU-27-2	10,000	10,000	100%	ERU-27-2	10,000	100%	10,000	yes
ERU-46-1	10,000	10,000	100%	ERU-46-1	10,000	100%	10,000	yes
ERU-46-2	12,000	12,000	100%	ERU-46-2	12,000	100%	12,000	yes
ERU-67-1	12,000	12,000	100%	ERU-67-1	12,000	100%	12,000	yes
ERU-67-2	12,000	12,000	100%	ERU-67-2	12,000	100%	12,000	yes
ERU-91-1	12,000	12,000	100%	ERU-91-1	12,000	100%	12,000	yes

Appendix A1a
Tower Curtain wall Specification – Performance Requirements

- 1.6.10.12 All glass and glazing details shall be reviewed for thermal and design sizes (loads) and approved by the glass manufacturer.
- 1.6.10.13 The glass manufacturer shall perform a thermal stress and load stress analysis.
- 1.6.10.14 If applicable, acoustical performance shall meet and/or exceed requirements of project acoustic report, or code required minimums, whichever is more stringent.
- 1.6.11 Sealants used as weather seals shall not experience adhesive or cohesive failure. Sealants shall withstand movements up to the limits prescribed by manufacturers. Exposed sealant surface shall not crack or bubble. Sealant shall not stain adjacent materials. Sealants shall be used only if manufacturer's adhesion, compatibility and stain tests yield favorable results.
- 1.6.12 Snap engaged components shall not disengage when subjected to concentrated force of 10 pounds (4.54 kg) or during mock-up structural tests. Mechanical fasteners shall be incorporated.
- 1.6.13 Condensation Control: For conditions listed below, condensation or frost formation on indoor surfaces (including surfaces covered by insulation) shall not occur. The mechanical engineer shall confirm the following values and performance requirements. If vision glass area is 50% of total building façade or higher an ASHRAE analysis is required.
- 1.6.13.1 Night
Outdoor air temperature: 5°F.
Indoor air temperature: 68°F.
Indoor relative humidity: 40%
- 1.6.14 Criteria for Thermal Performance
- 1.6.14.1 Condensation resistance factor (CRF) shall be at least 55 when determined in accordance with AAMA 1503-09.
- 1.6.14.2 Heat transmission (U-value) when determined in accordance with AAMA 1503-09 and NFRC 100-2010 (15 mph wind velocity) are as follows:
- For flat vision glazing:
- Glazing U-values must be $U = 0.27$ **0.30** or better.
- Solar Heat Gain Coefficient must be SHGC = .35 or better**
- Visible Light Transmittance must be TVIS = 62% or better
- 1.6.14.3 **Assembly U-values for flat glazing must be $U = 0.37$ or better for the overall vision glass with surrounding framing metal.**
- All window frames shall be thermally broken and insulated.
- 1.6.14.4 R-Value—Wall and/or Spandrel Area: Shall have the necessary composition to achieve the R value required to achieve an overall assembly of $U = 0.05$ or better.
- 1.6.14.5 The mechanical engineer shall further advise as to performance criteria that would make the project eligible for grants or partnership arrangements.

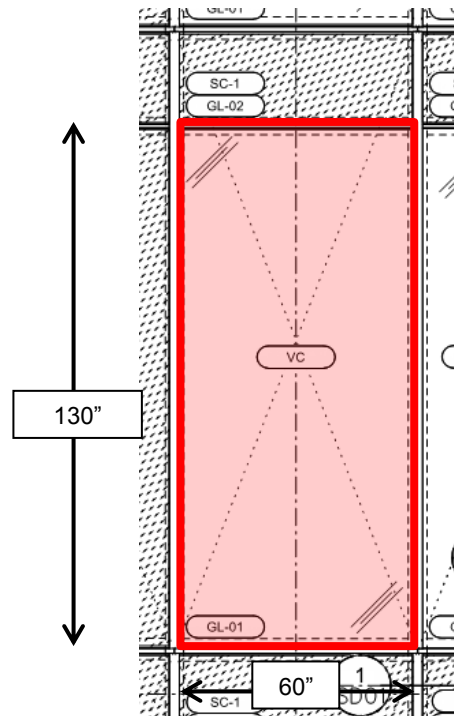


Figure 18: Typical Vision Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Mullion - Vision / Spandrel	1.25	601.90	4.18	5.22
<i>Left Section</i>	0.23	308.13	2.14	0.49
<i>Right Section</i>	0.37	308.13	2.14	0.79
Transom - Spandrel / Vision	0.98	235.32	1.63	1.60
<i>Top Section</i>	0.27	132.18	0.92	0.25
<i>Bottom Section</i>	0.35	132.18	0.92	0.32
Vision Glass	0.28	6082.18	42.24	11.83
Totals		7800	54	20.51

Vision U-Value	0.38 [Btu/h.ft ² .F]
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Table 6: Wall Type A Vision U-Value

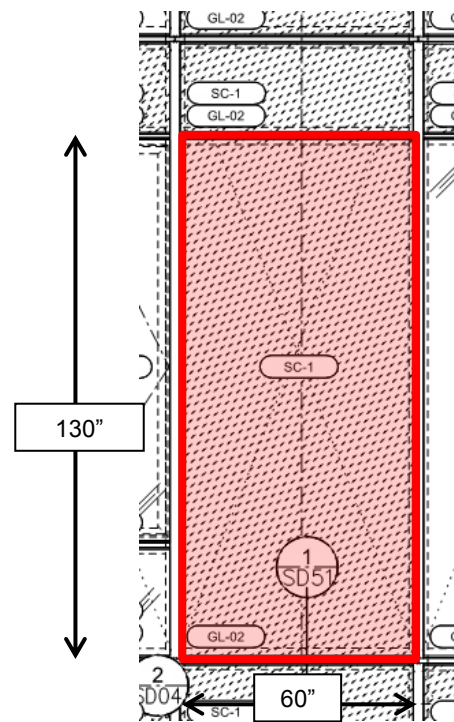


Figure 19: Typical Spandrel Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Dart Mullion - Spandrel / Spandrel	0.14	601.90	4.18	0.59
<i>Left Section</i>	0.14	308.13	2.14	0.30
<i>Right Section</i>	0.14	308.13	2.14	0.30
Transom - Spandrel / Spandrel	0.55	235.32	1.63	0.90
<i>Top Section</i>	0.35	132.18	0.92	0.32
<i>Bottom Section</i>	0.35	132.18	0.92	0.32
Spandrel Region	0.05	6082.18	42.24	2.11
Totals		7800	54	4.84

Spandrel U-Value	0.09 [Btu/h.ft ² .F]
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Table 7: Wall Type A Spandrel U-Value

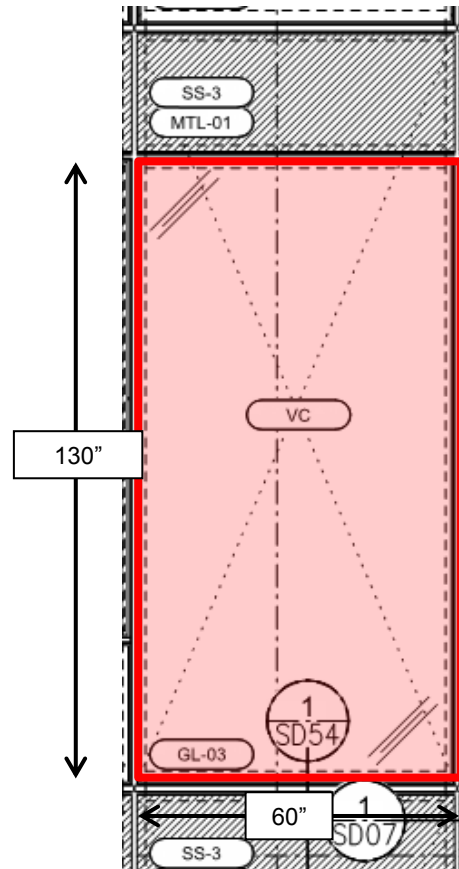


Figure 16: Typical Vision Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Mullion - Vision / Vision	1.05	601.90	4.18	4.39
<i>Left Section</i>	0.35	308.13	2.14	0.75
<i>Right Section</i>	0.35	308.13	2.14	0.75
Transom - Metal / Vision	1.17	235.32	1.63	1.91
<i>Top Section</i>	0.32	132.18	0.92	0.29
<i>Bottom Section</i>	0.36	132.18	0.92	0.33
Glass Vision	0.28	6082.18	42.24	11.83
Totals		7800	54	20.25

Vision U-Value	0.37 [Btu/h.ft ² .F]
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Table 6: Wall Type B Vision U-Value

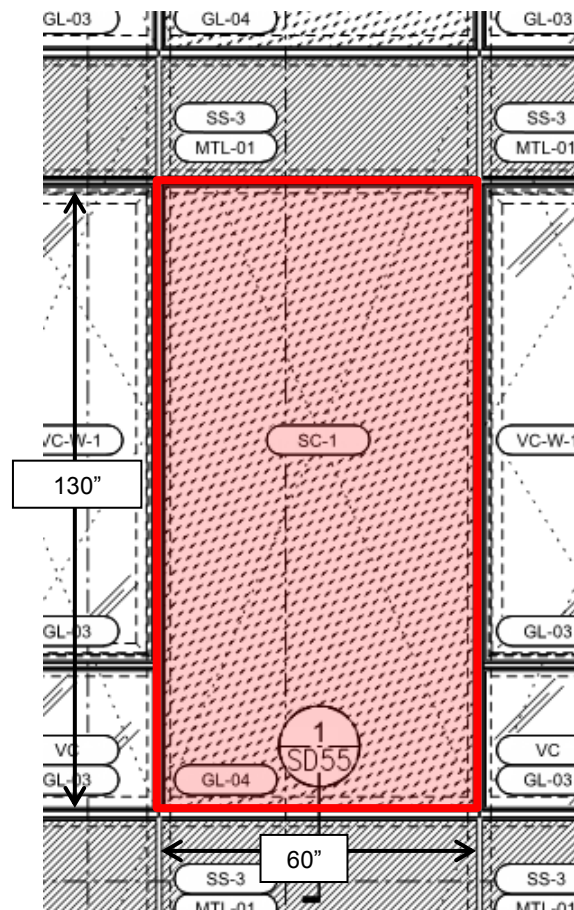


Figure 17: Typical Spandrel Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Mullion - Vision / Spandrel	0.98	601.90	4.18	4.10
Left Section	0.37	308.13	2.14	0.79
Right Section	0.19	308.13	2.14	0.41
Transom - Metal / Spandrel	0.60	235.32	1.63	0.98
Top Section	0.39	132.18	0.92	0.36
Bottom Section	0.38	132.18	0.92	0.35
Spandrel Region	0.05	6082.18	42.24	2.11
Totals		7800	54	9.09
Overall U-Value		0.17 [Btu/h.ft ² .F]		

Table 7: Wall Type B Spandrel U-Value

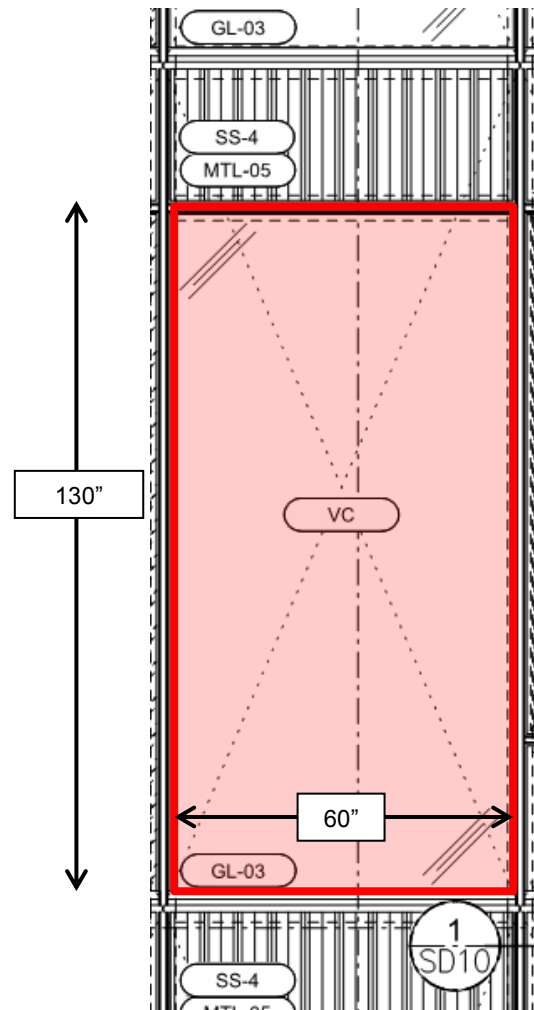


Figure 16: Typical Vision Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Mullion - Vision / Vision	1.05	601.90	4.18	4.39
Left Section	0.35	308.13	2.14	0.75
Right Section	0.35	308.13	2.14	0.75
Transom - Metal / Vision	1.21	235.32	1.63	1.98
Top Section	0.33	132.18	0.92	0.30
Bottom Section	0.36	132.18	0.92	0.33
Glass Vision	0.28	6082.18	42.24	11.83
Totals		7800	54	20.32
Vision U-Value		0.38	[Btu/h.ft ² .F]	

Table 6: Wall Type E Vision U-Value

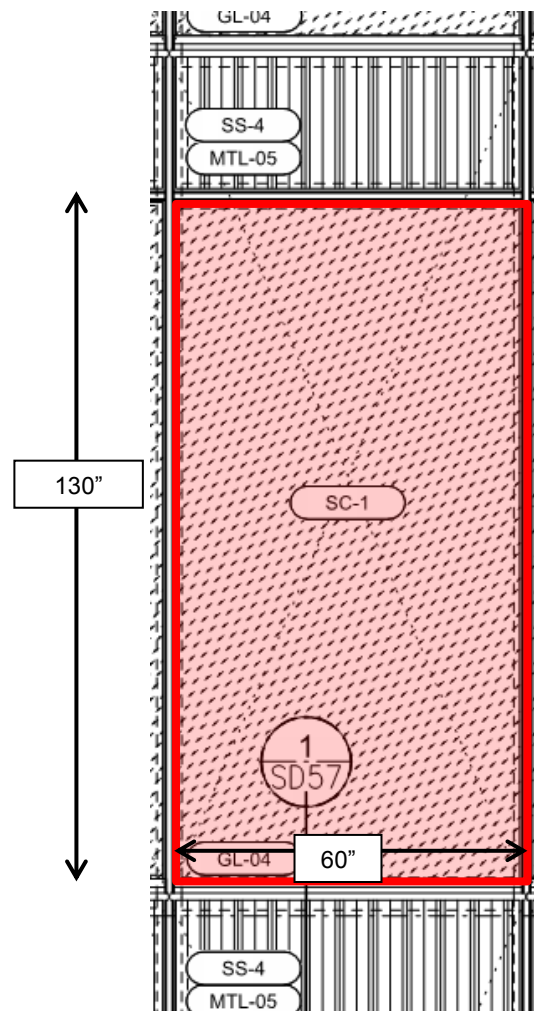


Figure 17: Typical Spandrel Unit

Components	U-Value [Btu/h.ft ² .F]	Area [in ²]	Area [ft ²]	U * A
Mullion - Spandrel / Spandrel	0.63	601.90	4.18	2.63
<i>Left Section</i>	0.24	308.13	2.14	0.51
<i>Right Section</i>	0.24	308.13	2.14	0.51
Transom - Metal / Spandrel	0.64	235.32	1.63	1.05
<i>Top Section</i>	0.41	132.18	0.92	0.38
<i>Bottom Section</i>	0.40	132.18	0.92	0.37
Glass Vision	0.04	6082.18	42.24	1.69
Totals		7800	54	7.14

Spandrel U-Value	0.13 [Btu/h.ft ² .F]
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Table 7: Wall Type E Spandrel U-Value

Appendix A1b
Retail Curtain wall Specification – Performance Requirements

- 2.12.5.1. Two lites of glass bonded to a 1/16 inch minimum thickness clear, puncture-resistant thermoplastic interlayer.
- 2.12.5.2. Laminated glass shall meet the minimum requirements of ASTM C1172.
- 2.12.5.3. Interlayer shall be compatible with all glazing sealants.
- 2.12.5.4. Offset of glass edges at heat-treated laminated glass assemblies intended to be in alignment to be limited to 1/8 inch. Edge of laminated annealed glass to be ground and polished after lamination.
- 2.12.5.5. Laminated safety glass assemblies shall meet the requirements for safety glazing of CPSC standard 16 CFR 1201, Category II.
- 2.12.5.6. Manufacturer shall warrant that the laminated glass will not develop edge separation or other defects which may affect the structural integrity of the glass assembly or otherwise compromise the requirements of the glass for a period of ten [10] years.

2.12.6. Low-E Coated Glass:

- 2.12.6.1. Low-emissivity coating[s] shall be neutral in transmitted and reflected color and otherwise exhibit the visual and performance characteristics of the products specified herein.
- 2.12.6.2. Low-E coatings shall be applied through the MSVD [magnetic sputter vacuum deposition] process.
- 2.12.6.3. Visual quality control acceptance criteria of the low-E coating shall be consistent with industry guidelines, subject to approval of the Architectural Design Team:
 - 2.12.6.3.1. Pinholes with diameters in excess of 1/16 inch are not acceptable.
 - 2.12.6.3.2. Scratches no longer than 3 inches in length are acceptable provided that they occur within 3 inches of an edge.
 - 2.12.6.3.3. Clusters of pinholes are not acceptable.
- 2.12.6.4. Manufacturer shall warrant that the low-E coating will not crack, peel, fade or deteriorate for a period of ten [10] years.

2.12.7. Glass Products:

- 2.12.7.1. Insulated Bent Glass: Clear low-iron glass for use in an insulated assembly.
 - 2.12.7.1.1. Performance characteristics GL-51 [see Glass Schedule for make-up, Section 2.12.10] to be equal or better than the following:
 - 2.12.7.1.1.1.1. Reflected light: 15 percent [maximum]
 - 2.12.7.1.1.1.2. U-Value [Winter]: **0.31** btu-in/hr-sq ft F [maximum]
 - 2.12.7.1.1.1.3. Shading heat gain coefficient: **0.60** [maximum]
- 2.12.7.2. **Insulated Glass:**
 - 2.12.7.2.1. **Performance characteristics GL-54 [see Glass Schedule for make-up, Section 2.12.10] to be equal or better than the following:**

Worst case performance for Retail Glazing (IGU), used for energy model.

03

03

2.12.7.2.1.1.1. **U-Value [Winter]: 0.27 btu-in/hr-sq ft F [maximum]**

2.12.7.2.1.1.2. **Shading heat gain coefficient:
0.54 [maximum]**

03

2.12.7.3. Low-iron Glass:

2.12.7.3.1. All clear glass substrates to be low-iron, water white glass.

2.12.7.3.2. Low-iron glass in a 1/4 inch thickness shall have a minimum visible light transmission of 90 percent.

2.12.7.3.3. Acceptable products are:

2.12.7.3.3.1. Ultra White as manufactured by Guardian.

2.12.7.3.3.2. Ipawhite as manufactured by Interpane Glas

2.12.7.3.3.3. Starphire as manufactured by PPG Industries.

2.12.7.3.3.4. Diamant as manufactured by Saint Gobain Glass.

2.12.7.3.3.5. **Optiwhite as manufactured by Pilkington.**

03

2.12.8. Glass Edges:

2.12.8.1. All exposed glass edges shall be ground and polished with brilliant edges of similar appearance to the front of the glass.

2.12.8.2. All butt glass edges shall be ground and swiped with chamfered arrises.

2.12.8.3. All other glass edges shall have a high-quality factory-cut edge.

2.12.8.4. All glass edges shall conform to the following requirements:

2.12.8.4.1. Shark teeth shall not be allowed.

2.12.8.4.2. Serration hackle shall not penetrate more than 10 percent of the glass thickness.

2.12.8.4.3. Flare shall not exceed 1/16 inch as measured perpendicular to the glass surface at the edge.

2.12.8.4.4. Bevel shall not exceed 1/16 inch.

2.12.8.4.5. Flake chips shall not exceed 1/32 inch in length nor 1/4 inch in diameter.

2.12.8.4.6. Rough chips exceeding the dimensions listed in Item e above shall not be permitted.

2.12.9. Approved Glass Manufacturers:

2.12.9.1. The following are approved glass manufacturers. Alternate manufacturers are subject to the approval of the Architectural Design Team.

2.12.9.1.1. Bent Glass:

2.12.9.1.1.1. Isoclima s.p.a.
Via lessandro Volta 14
35042 Este Padova
Italy



5.4 Overall U-Value

Area weighting of the U-values of frame sections and center-of-spandrel is used to calculate the overall frame U-value for WT-37 calculation.

Components	U-Value (Btu/h.ft ² .F)	Area (in ²)	Area (ft ²)	U * A
Mullion Spandrel Area	1.87	1157.81	8.04	15.06
Left/Male Edge	0.37	729.58	5.07	1.88
Right/Female Edge	0.37	729.58	5.07	1.88
Stack	1.23	813.54	5.65	6.94
Sill Edge	0.32	328.75	2.28	0.74
Gutter Edge	0.32	328.75	2.28	0.72
Spandrel	0.05	18142.00	125.99	6.35
Totals	0.00	22230.00	154.38	33.57

Overall U-Value	0.22 (Btu/h.ft ² .F)
------------------------	--

Table 5: Overall Thermal Transmittance of Wall Type 37

Appendix A2
Lighting Power Density Calculations

Back of House Fixtures		
Fixture Tag	Watts/Fixture	Qty
A1a	59.0	589
A2a	56.0	641
A2b	28.0	149
A3a	45.6	136
A3b	45.6	185
A4b	22.8	129
A5	40.0	33
A6	15.0	20
A7	172.0	88
A8	0.8	67
Total BOH Watts		109,207
Total BOH Model Area (sf)		124,054
Model w/sf		0.88

Amenities Fixtures						
Fixture Tag	Watts/Fixt or Watts/LF	Spec Method	Regular Fixture Qty/lf	Decorative Fixture Qty/lf	Regular Watts	Decorative Watts
LA-01	37	per fixture	36	0	1332	0
LA-02 (linear)	6	per linear foot	0	204	0	1224
LA-03	6.2	per linear foot	0	1	0	6
LA-05	19	per fixture	71	0	1349	0
LA-06	14	per fixture	8	0	112	0
LA-08	13	per fixture	3	0	39	0
LA-09	26	per fixture	9	12	234	312
LA-10	33	per fixture	2	0	66	0
LA-11	1.5	per linear foot	0	44	0	66
LA-12	50	per fixture	0	23	0	1150
LA-12A	50	per fixture	2	0	100	0
LA-13	6	per linear foot	0	30	0	180
LA-15	33	per fixture	5	0	165	0
LA-15A	36	per fixture	1	0	36	0
LA-17	10.1	per fixture	10	16	101	162
LA-18	100	per fixture	8	0	800	0
LA-21	14.4	per fixture	22	0	317	0
LA-21A	14	per fixture	6	4	84	56
LA-22	10.1	per fixture	3	0	30	0
LA-22A	10.1	per fixture	2	0	20	0
LA-22B	14.8	per fixture	20	0	296	0
LA-23	14	per fixture	20	0	280	0
LA-23A	14	per fixture	4	0	56	0
LA-24	36	per fixture	0	17	0	612
LA-25	6.23	per fixture	30	6	187	37
LA-26	2	per fixture	54	0	108	0
LA-27/LA-27A	13.1	per linear foot	284	0	3724	0
LA-28	6.3	per linear foot	5	0	32	0
LA-29	8	per linear foot	48	0	384	0
Total Watts					9,852	3,805
Total Amenities Model Area (sf)						19,848
w/sf - Regular						0.50
w/sf - Decorative						0.19

Residential Core Corridor Areas							
Tranche	Floor Area	Regular Watts	Decorative Watts	# Floors	Tranche Area	Total Regular Watts	Total Decorative Watts
Tranche 1	610	180	620	8	4880	1,440	4960
Tranche 2	340	82	130	14	4760	1,148	1820
Tranche 3/Tranche 4	358	125	130	63	22554	7,875	8190
Total Watts						10,463	14,970
Residential Model Area (sf)							560,618
Corridor Model Area (sf)							45,282
Total Area							605,900
Residential Watts (@ 0.7 w/sf)							392,432
Total Regular Watts							402,895
w/sf - Regular (total watts/total area)							0.66
w/sf - Decorative (Corridor only)							0.33

Appendix A3a
Lighting Fixture Schedules (BOH)

BOH LIGHTING FIXTURE SCHEDULE: Extell 217 West 57th Street									
TYPE	DESCRIPTION	MANUFACTURER	# LAMPS	WATTS / LAMP	LAMP TYPE	TOTAL WATTS	VOLT	CONTROL	COMMENTS
A 1a	CABLE MOUNTED LED INDUSTRIAL FLOODLIGHT NOM :2' H X 9' W X 24" L, FINNED ALUMINUM HEAT SINKS AND FROSTED LENS WITH NO BAFFLE. LISTING: UL, CUL DAMP LOCATION LISTED.	LUSIO ESSENTIALS BAY SERIES LW LUSIO ES2 2MS-40-FP- BAYN-277-TSD-NONDIM-MNO- C1SW-NOCEM	2	34.5	INTEGRAL LED 4000K, 75 CRI 5400 LUMENS	59	277	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH CEILING CONDITIONS & SPECIFY MOUNTING ACCESSORIES MOUNTING HEIGHT MIN. 9'-0" MAX. 11'-0".
A 1b	NOT USED								
A 2a	WALL MOUNTED LED STAIR LIGHT NOM : 9-40" H X 48-45"W X 3-46" D. PROVIDED WITH CLEAR PRISMATIC LENS & INTEGRAL OCCUPANCY SENSOR. LISTING: UL DAMP LOCATION LISTED.	LUMINAIRE LED STAIR LIGHTER HP TSL 9-4-56WHP-4000K-M7-277- CP-COLOR	1	56	INTEGRAL LED 4000K, 80 CRI 4752 LUMENS	56	277	SELF-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH WALL CONDITIONS. MINIMUM MOUNTING HEIGHT 6'-0"
A 2b	WALL MOUNTED LED STAIR LIGHT NOM : 9-40" H X 25"W X 3-46" D. PROVIDED WITH CLEAR PRISMATIC LENS & INTEGRAL OCCUPANCY SENSOR. LISTING: UL DAMP LOCATION LISTED.	LUMINAIRE LED STAIR LIGHTER HP TSL 9-2-26WHP-4000K-M7-277- CP-COLOR	1	26	INTEGRAL LED 4000K, 80 CRI 2376 LUMENS	26	277	SELF-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH WALL CONDITIONS. MINIMUM MOUNTING HEIGHT 6'-0"
A 3a	CABLE MOUNTED LED INDUSTRIAL LINEAR NOM :3' H X 3' W X 48" L, WITH FROSTED LENS. LISTING: CSA US	TEMPO INDUSTRIES C7100 LED LINEAR CT-1-1-10-277-N-0-1-M06-C-40- S-NA-48"	1	45.6	INTEGRAL LED 4000K, 80 CRI 3788 LUMENS	46.6	277	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH CEILING CONDITIONS & SPECIFY MOUNTING ACCESSORIES. MOUNTING HEIGHT MIN. 9'-0" MAX. 11'-0".
A 3b	CABLE MOUNTED LED INDUSTRIAL LINEAR NOM :3' H X 3' W X 48" L, WITH FROSTED LENS. LISTING: CSA US	TEMPO INDUSTRIES C7100 LED LINEAR CT-1-1-1-10-120-N-0-1-M06-C-40- S-NA-48"	1	45.6	INTEGRAL LED 4000K, 80 CRI 3788 LUMENS	46.6	120	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH CEILING CONDITIONS & SPECIFY MOUNTING ACCESSORIES. MOUNTING HEIGHT MIN. 9'-0" MAX. 11'-0".
A 4a	NOT USED								
A 4b	CABLE MOUNTED LED INDUSTRIAL LINEAR NOM :3' H X 3' W X 24" L, WITH FROSTED LENS. LISTING: CSA US	TEMPO INDUSTRIES C7100 LED LINEAR CT-1-1-1-10-120-N-0-1-M06-C-40- S-NA-24"	1	22.8	INTEGRAL LED 4000K, 80 CRI 1894 LUMENS	22.8	120	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH CEILING CONDITIONS & SPECIFY MOUNTING ACCESSORIES. MOUNTING HEIGHT MIN. 9'-0" MAX. 11'-0".
A 5	WAL PAC EXTERIOR LED FLOODLIGHT NOM :10' H X 13" W X 17" L, WITH BOROSILICATE LENS. LISTING: UL, CUL WET LOCATION LISTED.	COOPER LIGHTING STREETWORKS WKP-4A-LED-277-GL-COLOR	1	40	INTEGRAL LED 4000K, 67 CRI	40	277	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH WALL CONDITIONS & SPECIFY MOUNTING ACCESSORIES AS REQUIRED.
A 6	WALL MOUNTED UTILITY LIGHT LED, WITH FROSTED LENS.	LITHONIA LIGHTING OLVYWM	1	15	INTEGRAL LED 4000K, 600 LUMENS	15	UNV	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH WALL CONDITIONS.
A 7	CABLE MOUNTED LED INDUSTRIAL FLOODLIGHT NOM :2' H X 19" W X 24" L, FINNED ALUMINUM HEAT SINKS AND CLEAR LENS WITH NO BAFFLE. LISTING: UL, CUL DAMP LOCATION LISTED.	LUSIO ESSENTIALS BAY SERIES LW LUSIO ES2 6MS-40 CA- BAYN-277-TSD-NONDIM-MNO- C1SW-NOCEM	6	29	INTEGRAL LED 4000K, 75 CRI 18,200 LUMENS	172	277	NON-DIM	CONTRACTOR TO COORDINATE MOUNTING WITH CEILING CONDITIONS & SPECIFY MOUNTING ACCESSORIES MOUNTING HEIGHT MIN. 18'-0" MAX. 25'-0".

- NOTES**
- 1.1 ALL FINAL COLOR TRIMS FINISH TO BE APPROVED BY ARCHITECT.
- 1.2 REFER TO ELECTRICAL PLANS FOR FINAL LOCATION OF ALL EMERGENCY FIXTURES
- 1.3 NOT USED
- 1.4 NOT USED
- 1.5 ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT FOR LOCATION OF LIGHTING SWITCHES AND DIMMERS.
- 1.6 WHEN "EM" IS INDICATED IN THE ELECTRICAL PLAN, FIXTURE SHALL BE WIRED TO BE CONNECTED TO EMERGENCY GENERATOR. COORDINATION WITH ELECTRICAL SPECIFICATIONS REQUIRED.

0 4'-0" 8'-0" 16'-0"

DOB SUBMISSION

Discrepancies must be reported immediately to the Architect before proceeding. Only figured dimensions are to be used. Contractors must check all dimensions on site. This drawing is protected by copyright.

ALL DIMENSIONS ARE SHOWN IN IMPERIAL.

CONSULTANT:

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1501 BROADWAY, SUITE 700
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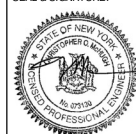
PROJECT:

217 WEST 57TH STREET
NEW YORK, NY

DRAWING TITLE:

ELECTRICAL
COVER SHEET

SEAL & SIGNATURE:



DATE: 04/04/14

PROJECT No: Y130747-000

DRAWN: PW REV:

CHK: EA

SCALE: As indicated

DWG No:

E-000.00

DOB PAGE No: 1 of 97

DOB EMPLOYEE STAMP:

DOB B-SCAN:

Appendix A3b
Lighting Fixture Schedules (Main Building)

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
AMENITIY FLOORS INTERIOR LIGHTING			
LA-01	Recessed 4" square aperture fixed LED downlight with overlap flange for 22' high ceiling - dimmable <u>Location:</u> 8 th Floor Lounge & Banquet Hall	3000K White LEDs 3000 engine lumens <u>Watts:</u> 37W <u>Voltage:</u> 120V <u>Power Supply:</u> Lutron Hi-Lume Class A 1% dimming driver for use with dimming controls (specified by others)	INDY SDSQ4-30-30-1-PD SDSQ4-SA-F-PF-(accessories) Provide clear (SA) cone finish and white (PF) overlap flange finish; Contractor to confirm hanging bar selection
LA-02	Surface mounted linear LED strip light for cove applications - dimmable <u>Location:</u> 8 th Floor Tween Lounge, Reception, & Banquet Hall	3000K White LED 242 lumens per foot <u>Watts:</u> 6W/lf <u>Voltage:</u> 100-277VAC <u>Driver:</u> Internal, no external power supply required; compatible with reverse-phase ELV type dimmers	PHILIPS COLOR KINETICS eW Cove QLX Powercore Item # 523-000004-22 Refer to architectural drawings for run lengths and mounting details; fixture to be completely hidden from view by cove construction; supply with mounting track, leader and jumper cables as required per manufacturer's recommendations for a complete system
LA-03	Recessed continuous LED lensed slot in vertical inverted "U" configuration - dimmable <u>Location:</u> 8 th Floor Lounge (fabric wall)	3000K White LED 368 lumens per foot <u>Watts:</u> 6.23W/lf <u>Voltage:</u> 120-277V <u>Driver:</u> Internal, no external power supply required	PINNACLE E2A-30-(Inverted "U")-FL-UNV-1D-W-E2CI The fixture shall be in a vertical inverted "U" configuration with (2) 90° inside corners – (niche wall height x niche length x niche wall height); mounting detail to be coordinated; with white overlap flange finish; manufacturer's shop drawings showing run length, configuration, and mounting required for approval

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-03A	<p>Recessed continuous LED lensed slot in vertical inverted "U" configuration - dimmable</p> <p><u>Location:</u> 8th Floor Lounge (onyx wall)</p>	<p>3000K White LED 368 lumens per foot</p> <p><u>Watts:</u> 6.23W/lf <u>Voltage:</u> 120-277V <u>Driver:</u> Internal, no external power supply required</p>	<p>PINNACLE E2A-30-(Inverted "U")-FL-UNV-1D-W-E2CI</p> <p>The fixture shall be in a vertical inverted "U" configuration with (2) 90° inside corners – (onyx wall height x onyx wall length x onyx wall height); mounting detail to be coordinated; with white overlap flange finish; manufacturer's shop drawings showing run length, configuration, and mounting required for approval</p>
LA-04	<p>Custom decorative LED chandelier with multiple small glowing globes - dimmable</p> <p><u>Location:</u> 8th Floor Lounge</p>	<p>3000K LEDs</p> <p><u>Watts:</u> Allow 300W Max. <u>Voltage:</u> 120V <u>Power Supply:</u> Remote, dimmable (to be coordinated)</p>	<p>Custom Fixture – specification and design to be coordinated with Rottet Studio</p>
LA-05	<p>Recessed 4" round aperture fixed LED downlight with overlap flange</p> <p><u>Location:</u> 8th & 10th Floor Restrooms/Locker Rooms</p>	<p>3000K White LEDs 1500 engine lumens</p> <p><u>Watts:</u> 19W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, non-dim</p>	<p>INDY SD4-15-30-1 SD4-SA-F-PF</p> <p>Provide clear (SA) cone finish and white (PF) overlap flange finish</p>

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination.
Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-06	<p>Recessed 4" round aperture fixed LED downlight with overlap flange and wet location listing</p> <p><u>Location:</u> 8th & 10th Floor Shower Stalls</p>	<p>3000K White LEDs 1100 engine lumens</p> <p><u>Watts:</u> 14W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, non-dim</p>	<p>INDY SD4-15-30-1 SD4-SA-F-PF-WET Provide clear (SA) cone finish and white (PF) overlap flange finish; manufacturer to confirm that wet location rating is suitable for shower application</p>
LA-07	<p>Surface mounted white LED strip light located on top and under mirror to illuminate stone/tile wall</p> <p><u>Location:</u> Restrooms/Locker Rooms (vanity-sink)</p>	<p>3000K White LED 281 lumens per foot</p> <p><u>Watts:</u> 3W/lf <u>Voltage:</u> 120V <u>Power Supply:</u> Remote, non-dimming</p>	<p>VODE 707-Z1-01-(rail length)-C-AA-1-1-0 0-Z-LO-30-1-AL-0 Refer to architectural drawings for overall run lengths; with clip mounting – mounting and detail to be coordinated with Rottet Studio</p>
LA-08	<p>Recessed 4" round aperture fixed downlight for steam saunas</p> <p><u>Location:</u> 8th and 10th Floor Steam Saunas</p> <p><u>Not within Extell preferred vendor package</u></p>	<p>3000K LEDs 80 CRI</p> <p>1114 delivered lumens</p> <p>36° Beam Angle</p> <p><u>Watts:</u> 13W <u>Voltage:</u> 120V <u>Power Supply:</u> Dimmable driver (#A1-DRIVE-L0326-00-00-17-RP00)</p>	<p>CANTALUPI "Luna 13NC" #D3-LUA92-L1330-36-WS-03-8065 With matte white finish; provide Solite-style glass lens; IP65 listing</p>

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination.
Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-09	Recessed 4" square aperture fixed LED downlight with overlap flange for 16' high ceiling <u>Location:</u> 8 th Floor Reception, Billiards & Banquet Hall	3000K White LEDs 2000 engine lumens <u>Watts:</u> 26W <u>Voltage:</u> 120V <u>Power Supply:</u> Lutron Hi-Lume Class A 1% dimming driver for use with dimming controls	INDY SDSQ4-20-30-1-PD SDSQ4-SA-F-PF Provide clear (SA) cone finish and white (PF) overlap flange finish
LA-10	Surface ceiling mounted frosted lensed linear fluorescent closet light with occupancy sensor—nominal 4' length <u>Location:</u> Closets	FP28/ECO/830 <u>Watts:</u> 33W <u>Voltage:</u> 120V-277V <u>Ballast:</u> Integral, program rapid start electronic <u>Control:</u> Passive infrared occupancy sensor	BARTCO <i>Essence Collection</i> IPR5MS-1-28W-U-PRS-F-SMC-WH Architect to confirm white finish
LA-11	Surface mounted lensed white LED strip light with remote power supply mounted underneath bench – wet location listed <u>Location:</u> Saunas (underneath bench)	3000K White LED 108 lumens per foot 120° beam angle <u>Watts:</u> 1.5W/lf <u>Voltage:</u> 120V (24V) <u>Power Supply:</u> Remote, non-dimming (must be located outside of sauna) <u>Control:</u> Run length to be controlled by nearby wall switch <u>Ambient Temperature:</u> 45°C (113°F Max.)	LEDLinear "VarioLED Flex Hydra LD5" Art. #10081 "VarioContour 003" – mounting channel – Art. #10000000 "VarioCover 003/006 R Clear" – lens – Art. # 12000002 Refer to architectural drawings for overall run lengths; fixture mounted underneath bench seat with mounting channel and IP67 plug in connectors; provide clips and end caps as required for a complete system

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination.
Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-12	<p>Recessed 4x7 rectangular aperture adjustable LED downlight with overlap flange with marine grade materials/finish-dimmable</p> <p><u>Location:</u> 10th Floor Pool Room</p> <p><u>Not within Extell preferred vendor package</u></p>	<p>3000K White LEDs 6000 engine lumens per LED module (12,000 lumens total)</p> <p><u>Watts:</u> Allow 50W Max. <u>Voltage:</u> 120V <u>Power Supply:</u> Lutron Hi-Lume Class A 1% dimming driver for use with dimming controls (specified by others)</p>	<p>CANTALUPI "DIVA 7 RQ" #D2-DIVRQ-L2830-36-WS-07-8000/MOD (6000lm module) Fixture must be rated for saltwater pool environment – marine grade</p>
LA-13	<p>Surface mounted linear LED strip light for cove application with corrosive resistant coating for saltwater pool environment - dimmable</p> <p><u>Location:</u> 10th Floor Pool Room</p> <p><u>Not within Extell preferred vendor package</u></p>	<p>3000K White LEDs 430 lumens per foot (approx.)</p> <p><u>Watts:</u> 6W/lf <u>Voltage:</u> 120V <u>Driver:</u> Internal, no external power supply required; 0-10V type dimmer required (specified by others)</p>	<p>LUMENPULSE LXT RO-120-12-30K-SAM-SI-DIM-CRC Refer to architectural drawings for run lengths and configurations; mounting detail to be coordinated; with silver finish; supply with slim adjustable mounting track, leader and jumper cables as required per manufacturer's recommendations for a complete system</p>
LA-13A	NOT USED		

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-14	<p>Surface mounted lensed white LED strip light with remote power supply for shelf lighting - dimmable</p> <p><u>Location:</u> 8th Floor Banquet Hall (Wine Rack Shelf)</p>	<p>3000K White LED 309 lumens per foot (board) 85 CRI</p> <p><u>Watts:</u> 2.9W/lf <u>Voltage:</u> 120V-277V (24V) <u>Power Supply:</u> Remote, dimming power supplies</p>	<p>LEDLinear "VarioLED Flex Hydra HD10" Art. #10176 10000301 – Mounting Profile for Lens 10000039 – Mounting Profile 12000013 – Opal Lens Refer to architectural drawings for overall run lengths and details; fixture available in 2.5in minimum lengths; fixture mounted into grooved slot with channel and opal lens at each shelf to graze up wall surface; refer to architectural drawings for shelf details; fixture length to run width of shelf; lens to be flush with bottom of millwork</p>
LA-15	<p>Recessed mounted linear fluorescent 2.75" wide lensed slot fixture – nominal 4ft length</p> <p><u>Location:</u> Women's and Men's Restroom/Locker Niches</p>	<p>F28T5/830/ALTO</p> <p><u>Watts:</u> 33W <u>Voltage:</u> 120-277V <u>Ballast:</u> Internal, non-dim</p>	<p>PINNACLE E2A-1T5-4-SFS-120-1C-W Provide spackle flange; with white trim finish</p>
LA-15A	<p>Recessed mounted linear fluorescent 2.75" wide lensed slot fixture – nominal 3ft length</p> <p><u>Location:</u> Women's Restroom Niche</p>	<p>F21T5/830/ALTO</p> <p><u>Watts:</u> 36W <u>Voltage:</u> 120-277V <u>Ballast:</u> Internal, non-dim</p>	<p>PINNACLE E2A-1T5-3-SFS-120-1C-W Provide spackle flange; with white trim finish</p>
LA-16	NOT USED		

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-17	Recessed 3" round aperture fixed LED downlight with overlap flange <u>Location:</u> Restrooms/Locker Rooms (above sinks)	3000K White LEDs 600 engine lumens <u>Watts:</u> 10.1W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, non-dim	JUNO 2C-830-N-1-CLW-(accessories) Provide clear cone and white trim ring finish
LA-17A	NOT USED		
LA-18	Custom decorative LED or CFL sconce <u>Location:</u> 10 th Floor Pool Room	LED or CFL <u>Watts:</u> Allow 100W MAX. <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, dimmable	Custom Fixture – specification and design to be coordinated with Rottet Studio; provide material/finish suitable for saltwater pool room environment
LA-19	NOT USED		
LA-20	NOT USED		
LA-21	Recessed LED 4" square aperture fixed downlight with overlap flange <u>Location:</u> Public Corridors	3000K White LEDs 1100 engine lumens <u>Watts:</u> 14.4W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral	INDY SDSQ4-11-30-1 SDSQ4-SA-PF Provide clear (SA) cone finish and white (PF) overlap flange

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-21A	Recessed LED 4" square aperture fixed downlight with overlap flange - dimmable <u>Location:</u> Tween Lounge	3000K White LEDs 1100 engine lumens <u>Watts:</u> 14W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, reverse phase dimming (120V only)	INDY SDSQ4-11-30-1-R SDSQ4-SA-PF Provide clear (SA) cone finish and white (PF) overlap flange
LA-22	Recessed pinhole square aperture adjustable LED downlight with overlap flange - dimmable <u>Location:</u> Tween Lounge	3000K White LEDs 700 engine lumens <u>Watts:</u> 10.1W <u>Voltage:</u> 120-277V <u>Power Supply:</u> Integral, 0-10V dimming	ACULUX TC207LSQAR-830-N-U 2008SQHZ-SFWH Provide white trim finish
LA-22A	Recessed pinhole square aperture adjustable LED downlight with overlap flange for wood ceiling - dimmable <u>Location:</u> Lounge (TV niche)	3000K White LEDs 700 engine lumens <u>Watts:</u> 10.1W <u>Voltage:</u> 120-277V <u>Power Supply:</u> Integral, 0-10V dimming	ACULUX TC207LSQAR-830-N-U 2008SQHZ-SF Provide self-flanged haze finish for wood ceiling installation
LA-22B	Recessed pinhole square aperture adjustable LED downlight with overlap flange - dimmable <u>Location:</u> Reception	3000K White LEDs 1000 engine lumens <u>Watts:</u> 14.8W <u>Voltage:</u> 120-277V <u>Power Supply:</u> Integral, 0-10V dimming	ACULUX TC207LSQAR-830-N-U 2008SQHZ-SFWH Provide white trim finish; output of fixture to be confirmed with signage

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination.
Thick ceilings (greater than 3/4") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-23	Recessed LED 4" square aperture lensed wallwasher with overlap flange <u>Location:</u> Corridor	3000K White LEDs 1100 engine lumens <u>Watts:</u> 14W <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, non-dim	INDY SDSQ4-11-30-1 SAWSQ4-SA-F-PF-(accessories) Provide clear (SA) cone finish and white (PF) overlap flange
LA-24	Surface mounted LED or CFL decorative sconce <u>Location:</u> Elevator Lobby	3000K LEDs or CFL <u>Watts:</u> Allow 36W Max. <u>Voltage:</u> 120V <u>Power Supply:</u> Integral, non-dim	Custom Fixture – specification and design to be coordinated with Rottet Studio
LA-25	Recessed mounted linear LEDCO 2.75" wide lensed slot fixture – multiple lengths– perimeter mounted - dimmable <u>Location:</u> 8 th and 10 th Floor Niches	3000K White LED 368 lumens per foot <u>Watts:</u> 6.23W/lf <u>Voltage:</u> 120-277V <u>Driver:</u> Internal, dimmable no external power supply required	PINNACLE E2A-30-(lengths)-SFS-UNV-1D-W-PM Refer to architectural drawings for run lengths; fixture perimeter mounted onto one wall – provide spackle flange on opposite side; with white trim finish; manufacturer's shop drawings showing run lengths and mounting required for approval
LA-26	Modified decorative cylindrical LED pendant with frosted diffuser "tip" - dimmable <u>Location:</u> 8 th Floor Banquet Hall <u>Not within Extell preferred vendor package</u>	3000K LEDs (Lumens to be determined) <u>Watts:</u> (Allow 2W each) <u>Voltage:</u> 120-277V <u>Driver:</u> Remote, dimmable	VIBIA "SLIM" 0920-03-MOD/Brass Finish and High Output LEDs and Small Canopy Modified with brass finish, small diameter canopy, and high output LEDs – to be coordinated with manufacturerREC

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than 3/4") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-27	Pendant mounted linear LED lensed slot fixture – nominal 8ft length - dimmable <u>Location:</u> 10 th Floor Gym and Rock Climbing Wall Classroom	3000K High Output LEDs 819 lumens/ft <u>Watts:</u> 13.1W/lf <u>Voltage:</u> 120V <u>Driver:</u> Internal, 0-10V dimmable	PINNACLE EX6-A-30HO-8-AC48JB-120V-1D-CC-CC With aircraft cable j-box mounting; fixture mounted above slat opening with bottom of fixture aligned with bottom of slats, centered; final spacing and locations to be confirmed
LA-27A	Pendant mounted linear LED lensed slot fixture – nominal 4ft length - dimmable <u>Location:</u> 10 th Floor Gym and Rock Climbing Wall Classroom	3000K High Output LEDs 819 lumens/ft <u>Watts:</u> 13.1W/lf <u>Voltage:</u> 120V <u>Driver:</u> Internal, 0-10V dimmable	PINNACLE EX6-A-30HO-4-AC48JB-120V-1D-CC-CC With aircraft cable j-box mounting; fixture mounted above slat opening with bottom of fixture aligned with bottom of slats, centered; final spacing and locations to be confirmed
LA-28	Surface mounted LED grid panel system - dimmable <u>Location:</u> 8 th Floor Banquet Hall (back light onyx wall)	3000k LEDS 880 lumens per FT 7mm pitch <u>Watts:</u> 6.3W/FT <u>Voltage:</u> 58VDC <u>Driver:</u> Remote, 0-10V dimmable Class II power supply	COOLEGE SP-LLS-07-R01-(width)-(length)-K30-(wire length) Sample of onyx wall material required for mock-up and detail coordination with Rottet Studio; final specification to be determined

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination.
Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.

PART 4 LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP / ELECTRICAL	MANUFACTURER / CATALOG #
LA-29	Surface mounted linear LED strip light with wide beam distribution-dimmable <u>Location:</u> 10 th Floor Spa (barrisol ceiling)	3000K White LED 475 lumens per foot 125° x 120° beam angle <u>Watts:</u> 8W/lf <u>Voltage:</u> 100-277VAC <u>Driver:</u> Internal, no external power supply required; compatible with reverse-phase ELV type dimmers	PHILIPS COLOR KINETICS eW Cove MX Powercore Item # 523-000050-31 Fixture to run entire length of barrisol ceiling opening and be spaced 12" on center; supply with mounting track, leader and jumper cables as required per manufacturer's recommendations for a complete system
LA-FL	Decorative floor lamp <u>Location:</u> 8 th Floor Lounge, Cigar Room, Billiards		To be selected – refer to FF&E package for information
LA-TL	Decorative table lamp <u>Location:</u> 8 th Floor Lounge, Cigar Room, Billiards		To be selected – refer to FF&E package for information
AMENITIY 8 th FLOOR TERRACE EXTERIOR LIGHTING			
LAX-01	PVC fixture mounted LED tree uplight – dimmable <u>Location:</u> Trees	3000K White LEDs 361 lumens 20° Beam <u>Watts:</u> 10W <u>Voltage:</u> 12V <u>Driver:</u> Integral within the module	KIM LIGHTING KLVL202BL-EP17-SL Landscape architect to confirm PVC fixture mounting (EP17) and black finish; with spread lens (SL); sample of fixture required for Lighting Designer review

- Notes:
1. Electrical Engineer to confirm voltage.
 2. Contractor shall verify all catalog codes with drawn and written descriptions.
 3. Architect to verify all fixture finishes.
 4. Architect to verify ceiling all ceiling materials and thicknesses for fixture trim coordination. Thick ceilings (greater than ¾") may require modifications to fixtures.
 5. Color temperature (3000K) to be confirmed by Extell.