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SECTION 1: COMPLIANCE

Approved construction documents must accomplish the following in order to demonstrate that they comply with the New York City Energy Conservation Code (NYCECC):

1) Include construction drawings and information that support the energy values outlined in the energy analysis for the envelope systems, HVAC, service water heating systems, lighting and power systems

2) Show mandatory requirements not included in the energy analysis, which can include envelope sealing, controls and control narratives for mechanical and lighting systems, duct sealing, duct and piping insulation, interior and exterior lighting layouts and descriptions, dwelling unit meters, etc. See 1 RCNY §5000-01 for additional information.

3) Establish what progress inspections must be performed during construction as required by Section BC 109.3.5 of the NYC Construction Codes, the NYCECC and as detailed in 1 RCNY §5000-01.

Remember, approved construction drawings provide the design for the contractor to perform his/her work and the basis for the progress inspector’s inspections. The progress inspector is not required to consult the NYCECC but rather to evaluate the construction against the approved drawings.

SECTION 2: KEY IDENTIFIERS

Identifiers for wall types, window types, equipment units, control types, lighting fixture types, etc., should be similar throughout the energy analysis, the supporting documentation and the drawings.

For example, the identifier “Roof Construction Type 1” in the energy analysis should be used also to identify that same roof construction in the roof plan and details, and “Lighting Fixture Type FL8” in the energy analysis should be easily identified in the legend and the lighting plans by the same identifier FL8.

SECTION 3: ENVELOPE

Building wall sections must show insulation as required by the NYCECC and specify the R values required by the energy analysis in the energy analysis for the roof, walls, floors and/or foundation/basement/cellars insulation, see Figure 1 in the Appendix for more information. Details should show how to turn from one plane to another without losing continuity of insulation or air barrier, or compressing insulation, and where to seal areas as identified in Sections ECC 402.4 and 502.4 of the NYCECC and in ASHRAE 90.1 Section 5.4.
Door, window and skylight schedules must include columns for the required U factors, SHGC values, VLT values and projection factors where applicable, see Figure 2 in the Appendix for information. Notes and details should show thorough sealing to prevent air leakage.

**SECTION 4: HVAC/SERVICE WATER HEATING**

Equipment sizing and efficiencies as required by Sections ECC 403.6, 403.7 and 503.2 of the NYCECC and ASHRAE 90.1 Sections 6.4.1 and 6.4.2, and included in the energy analysis must be supported in the construction documents, in the drawings, the equipment schedules and the notes, see Figure 3 in the Appendix for more information.

Where appropriate, the drawings must require duct sealing and proper insulation for ducts and piping, see Figure 4 in the Appendix for more information.

Mandatory controls must be shown on the drawings and a narrative provided that explains to the Department, the contractor and the progress inspector how the control systems function in accordance with NYCECC requirements, see Figure 5 in the Appendix for more information.

Mandatory dampers at air intakes and exhausts must be shown and identified.

**SECTION 5: LIGHTING AND POWER**

Lighting layouts should be shown on floor plans, reflected ceiling plans or electrical drawings to support the lighting shown in the energy analysis, see Figure 6 in the Appendix for more information.

Lighting fixture types, lamp and ballast types, quantities, wattages and fixture input wattages matching those in the energy analysis must be provided and linked to both exterior and interior lighting layouts in order to demonstrate compliance with lighting power density requirements, see Figure 7 in the Appendix for more information.

Mandatory controls must be shown on the drawings and a narrative provided that explains how the control systems function in accordance with NYCECC requirements, see Figure 8 in the Appendix for more information. Additionally, meters must be shown for dwelling units, tandem wiring, voltage drops, fan motors and other electrical motors must be shown as applicable, see Figure 9 in the Appendix for more information.

**SECTION 6: PROGRESS INSPECTIONS**

Progress inspections must be identified and clearly explained so that the contractor can estimate and schedule for them, and so that the contractor, progress inspector and all other affected parties understand what standard of construction is expected and what
activities will be performed during construction. All information in Table I or II should be shown as applicable to the scope of work and accordingly the table may be replicated in the drawings and edited for the project work.

Applications filed on or after September 7, 2010, are required to include the progress inspections on their drawings and check “Yes” for the progress inspection, “Energy Code Compliance Inspections,” on the filed TR1 form, see Figure 10 in the Appendix for more information.

Applications filed on or after February 7, 2011, must be accompanied by a TR8 form – see Figure 11 in the Appendix for more information, 1 RCNY §5000-01 for more information on the progress inspection tables and Figure 12 in the Appendix for residential and commercial buildings. Also, see the Information About Forms page for more information as well.
All Wall Assembly Types should be identified, corresponding to those noted in the Plans.

Insulation types should be identified and R-values stated throughout to match the Energy Analysis.

Wall sections and details should note materials and techniques to meet mandatory NYCECC Air Leakage requirements.
FIGURE 2: Sample Envelope Schedules

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>R.O. / M.O.</th>
<th>Glass Type</th>
<th>U-Factor</th>
<th>SHGC</th>
<th>Air Leakage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alum-Framed Dbl. Casement</td>
<td>3'-4&quot; x 6'-8&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.41</td>
<td>0.31</td>
<td>≤ 0.30 cfm/SF</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Alum-Framed Dbl. Casement</td>
<td>3'-4&quot; x 5'-4&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.41</td>
<td>0.31</td>
<td>≤ 0.30 cfm/SF</td>
<td>1</td>
</tr>
<tr>
<td>3A</td>
<td>Alum-Framed Storefront System</td>
<td>17'-4&quot; x 11'-4&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.49</td>
<td>0.32</td>
<td>≤ 0.06 cfm/SF</td>
<td>1,3,4</td>
</tr>
<tr>
<td>3B</td>
<td>Alum-Framed Storefront System</td>
<td>17'-4&quot; x 8'-0&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.49</td>
<td>0.32</td>
<td>≤ 0.06 cfm/SF</td>
<td>1,3</td>
</tr>
<tr>
<td>3C</td>
<td>Alum-Framed Storefront System</td>
<td>12'-0&quot; x 8'-0&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.49</td>
<td>0.32</td>
<td>≤ 0.06 cfm/SF</td>
<td>1,3</td>
</tr>
<tr>
<td>3D</td>
<td>Alum-Framed Storefront System</td>
<td>11'-4&quot; x 8'-0&quot;</td>
<td>IGU, low-e, clear</td>
<td>0.49</td>
<td>0.32</td>
<td>≤ 0.06 cfm/SF</td>
<td>1,3</td>
</tr>
<tr>
<td>4</td>
<td>Alum-Framed Fixed Skylight</td>
<td>7'-6&quot;W x 15'-0&quot;L</td>
<td>IGU, low-e, tinted</td>
<td>0.82</td>
<td>0.2</td>
<td>≤ 0.10 cfm/SF</td>
<td>2,4</td>
</tr>
</tbody>
</table>

Notes:

1. Air leakage: Provide flashing, window dams, expandable foam sealant, and caulking at rough opening/window frame joints to create a continuous air barrier with surrounding wall system.

2. Air leakage: Provide flashing, expandable foam sealant, and caulking at rough opening/skylight frame joints to create a continuous air barrier with surrounding roof system.

4. Manufacturer's air infiltration rates based on 6.24 psf (300 Pa) static pressure differential, tested per ASTM E 283.

<table>
<thead>
<tr>
<th>Exterior Door Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

Notes:

1. Air leakage: Provide flashing, expandable foam sealant, and caulking at rough opening/door frame joints to create a continuous air barrier with surrounding wall system.

2. See Dwg. A-605 for detailed entry door elevations. Doors will be field-fitted with weather-stripping per ECC Section 502.4.1.
**FIGURE 3: HVAC Schedule Examples (Partial Views)**

### BOILER SCHEDULE

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>GAS</th>
<th>TOTAL CFM</th>
<th>O.A. CFM</th>
<th>EXT S.P. IN W.C.</th>
<th>TOTAL S.P. IN W.C.</th>
<th>RPM</th>
<th>FILTER</th>
<th>MOTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1</td>
<td></td>
<td>600</td>
<td>1200</td>
<td>1.5</td>
<td>3.50</td>
<td>60</td>
<td>-</td>
<td>10</td>
</tr>
</tbody>
</table>

### AIR HANDLING UNIT SCHEDULE

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>LOCATION</th>
<th>SERVICE</th>
<th>TOTAL CFM</th>
<th>O.A. CFM</th>
<th>EXT S.P. IN W.C.</th>
<th>TOTAL S.P. IN W.C.</th>
<th>RPM</th>
<th>FILTER</th>
<th>MOTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHU-1</td>
<td>ROOF</td>
<td>OFFICE</td>
<td>10000</td>
<td>1200</td>
<td>1.5</td>
<td>3.50</td>
<td>-</td>
<td>MERV 13</td>
<td>8.47</td>
</tr>
</tbody>
</table>

### INCREMENTAL WALL AIR-COOLED AC UNITS

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>MODEL</th>
<th>CFM</th>
<th>COOLING (1) TOTAL CAPACITY BTU/H</th>
<th>EER</th>
<th>TOTAL CAPACITY BTU/H</th>
<th>HEATING HOT WATER HOT</th>
<th>EWT</th>
<th>LWT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTAC -1</td>
<td>MODEL</td>
<td>350</td>
<td>9,500</td>
<td>11.2</td>
<td>12,140</td>
<td>190</td>
<td>170</td>
<td></td>
</tr>
</tbody>
</table>
503.2.7 Duct and plenum insulation and sealing
- Required for supply and return ducts and plenums
  - Located in unconditioned space = R5
  - Outside the building = R8

503.2.7.1.3 High-pressure duct systems
- 25% of duct area needs leakage testing
- Residential ducts outside of conditioned space also need leakage testing.
7. THE SYSTEM AND ZONE CONTROL SHALL BE A PROGRAMMABLE THERMOSTAT OR OTHER AUTOMATIC CONTROL MEETING THE FOLLOWING CRITERIA (FOR ALL SYSTEMS OVER 6,800 BTU/HR CAPACITY):
   a. CAPABLE OF SETTING BACK TEMPERATURE TO 55°F DURING HEATING AND SETTING UP TO 85°F DURING COOLING.
   b. CAPABLE OF AUTOMATICALLY SETTING BACK OR SHUTTING DOWN SYSTEMS DURING UNOCCUPIED HOURS USING 7 DIFFERENT DAY SCHEDULES.
   c. HAVE AN ACCESSIBLE 2-HOUR OCCUPANT OVERRIDE.
   d. HAVE A BATTERY BACK-UP CAPABLE OF MAINTAINING PROGRAMMED SETTINGS FOR AT LEAST 10 HOURS WITHOUT POWER.
   e. THERMOSTATS CONTROLLING BOTH HEATING AND COOLING SHALL BE MANUAL CHANGE OVER OR SHALL BE CAPABLE OF MAINTAINING A 5°F DEAD BAND (A RANGE OF TEMPERATURE WHERE NO HEATING OR COOLING IS PROVIDED).
Fixtures should be keyed to the legend and have the same designations as in the Energy Analysis.
## FIGURE 7: Lighting/Power – Schedule

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>PHOTOMETRY</th>
<th>SYSTEM</th>
<th>VOLT</th>
<th>CONTROL INTENT</th>
<th>MANUFACTURER</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>ARM MOUNTED COSMO OR LED NYCDOT LIGHT POLE 25'-0&quot; A.F.G. WITH DAVID ARM AND OCTAGONAL POLE.</td>
<td>185 watts</td>
<td>120 V</td>
<td>PHOTOCELL, ON/TIMELOCK OFF</td>
<td>PHOTOCELL TO BE LOCATED ON EACH INDIVIDUAL FIXTURE AS PER DOT SPEC.</td>
<td>LUMINAIRE: HOLOPHANE #15DHP-12, F-AS-R</td>
</tr>
</tbody>
</table>

Fixture types, lamp and ballast types, quantities and wattages and fixture input wattages on drawings and schedules must match those in the Energy Analysis.
Narrative example:

<table>
<thead>
<tr>
<th>Room Number/Type</th>
<th>Control Strategy Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridors/Elev Lobbies</td>
<td>Automatic on/off of 75% of fixtures. 25% of fixtures to remain energized at all times (i.e. emergency fixtures to remain on).</td>
</tr>
<tr>
<td>Restrooms</td>
<td>Astronomical timeclock with occupancy sensor. Automatic on/off of 75% of fixtures. 25% of fixtures to remain energized at all times (i.e. emergency fixtures to remain on).</td>
</tr>
<tr>
<td>Locker Rooms</td>
<td>Astronomical timeclock with occupancy sensor. Automatic on/off of 75% of fixtures. 25% of fixtures to remain energized at all times (i.e. emergency fixtures to remain on).</td>
</tr>
<tr>
<td>Stairs</td>
<td>Astronomical timeclock with occupancy sensor to de-energize 50% of fixtures. 50% of fixtures to remain energized at all times.</td>
</tr>
<tr>
<td>Elec./Mechanical Rooms</td>
<td>Local switches with dual technology occupancy sensor (manual on, automatic off 75% of fixtures) and astronomical timeclock sweep. 25% of fixtures to remain energized at all times (i.e. emergency fixtures to remain on).</td>
</tr>
</tbody>
</table>
Partial views – Table I (Residential) & Table II (Commercial)

**TABLE I – PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE – RESIDENTIAL BUILDINGS**

<table>
<thead>
<tr>
<th>Inspection/Test</th>
<th>Frequency (minimum)</th>
<th>Reference Standard (See ECC Chapter 6 or Other Criteria)</th>
<th>ECC or Other Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA1 Envelope Inspections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA2 Insulation placement and R-values</td>
<td></td>
<td>Approved construction documents</td>
<td></td>
</tr>
<tr>
<td>IA3 Fenestration (Residential)</td>
<td></td>
<td>Approved construction documents</td>
<td></td>
</tr>
</tbody>
</table>