Packaged Cooling Systems with Steam Heating

Typology at a Glance

The statistics below reflect this typology’s fraction of citywide office building floor area, and the resulting energy use and greenhouse gas (GHG) emissions of all large office buildings, citywide.

- Gross SF: 104.4M SF
- GHG Emissions: 750,000 tCO₂e
- # of NYC buildings: 800
- Average Site EUI: 8.19 kBtu/SF/yr

Whole-building GHG distribution

This pie chart depicts the breakdown of GHG emissions by end-use system, as well as the split between base building and tenant usage for each system.

Owner/tenant collaboration

While LL97 places the responsibility to meet emissions limits on building owners, close collaboration between tenants and owners is critical to achieving the required GHG reductions. As part of tenant lease negotiations and tenant improvement projects, energy efficiency and GHG reduction will be an important element to reduce both base building and tenant emissions. Achieving LL97 compliance will require thoughtful owner-tenant engagement, to inform choices and behaviors that result in greater energy efficiency and emissions reductions.

Choosing a pathway to meet your reduction target

Choose a pathway below to decarbonization measures that can help you achieve your GHG reduction targets.

- 5–10% reduction
- 10–25% reduction
- >25% reduction

Select one of the following options:
A. Moderate existing tenant measures
B. Moderate base building measures
C. Deep tenant fitout measures
D. Deep base building measures

Calculate your carbon emissions

Use the BE-Ex Carbon Calculator: be-exchange.org/ll97-calculator

Compare to LL97 GHG limits

Compare your current calculated GHG emissions with Local Law 97 (LL97) limits and determine the percent reduction required for compliance.

Typology 2: Packaged Cooling Systems with Steam Heating

Tearsheet

Turning Data into Action

GHG Reduction Pathways for Commercial Office Buildings

Pathways to 2030

- 5–10% reduction
- 10–25% reduction
- >25% reduction

Choose a pathway below to decarbonization measures that can help you achieve your GHG reduction target.

Select the following:
A. Deep base building + Deep tenant fitout measures

Calculate your carbon emissions

Compare to LL97 GHG limits

Pathways to 2030

- 5–10% reduction
- 10–25% reduction
- >25% reduction

Choose a pathway below to decarbonization measures that can help you achieve your GHG reduction target.

Select the following:
A. Deep base building + Deep tenant fitout measures

Owner/tenant collaboration

While LL97 places the responsibility to meet emissions limits on building owners, close collaboration between tenants and owners is critical to achieving the required GHG reductions. As part of tenant lease negotiations and tenant improvement projects, energy efficiency and GHG reduction will be an important element to reduce both base building and tenant emissions. Achieving LL97 compliance will require thoughtful owner-tenant engagement, to inform choices and behaviors that result in greater energy efficiency and emissions reductions.

Read the report: be-exchange.org/beexreport/commercialdata

Learn more: be-exchange.org

March 2023
Building emissions by system

This shows the breakdown of GHG emissions by end-use system, as well as bar charts depicting building vs. tenant usage for each system.

### Breakdown

- **GHG process / conveyance**: 13%
- **GHG lighting**: 15%
- **GHG hot water**: 4%
- **GHG cooling**: 14%
- **GHG ventilation**: 5%
- **GHG heating**: 27%
- **GHG other**: 36%

### Retrofit Packages

#### Moderate Decarbonization

- **Base Building Measures**
  - Repair/place steam traps and control valves: 4.5%
  - Install or upgrade EMIs/BMS & other controls: 1.0%
  - Optimize server room cooling: 2.0%
  - Install dedicated outside air system (DOAS): 1.5%
  - Convert to water source heat pump or other electrification option: 14.0%

- **Existing Tenant Measures**
  - Upgrade to bi-level lighting fixtures in stairwells: 2.0%
  - Install plug load controls/timers: 0.5%
  - Install new LED lighting systems: 6.5%

- **Total Savings from Moderate Decarbonization**: 11–15%

#### Deep Decarbonization

- **Base Building Measures**
  - Convert to water source heat pump or other electrification option: 14.0%
  - Convert to water source heat pump or other electrification option: 2.0%
  - Convert to water source heat pump or other electrification option: 2.5%

- **Tenant Fitout Measures**
  - Move onsite IT to cloud, when possible: 0.5%
  - Utilize sleep modes on IT equipment: 0.5%
  - Use ENERGY STAR appliances: 0.5%

- **Total Savings from Deep Decarbonization Measures**: 30–35%

*For real-use scenarios, there are more savings listed. The net saving in dollars will vary depending on the specific building and tenant systems.*