BUILDING ENERGY ASSET SCORE
U.S. DEPARTMENT OF ENERGY

OVERALL BUILDING SCORE

BUILDING INFORMATION

PS 118
123 Main Street
New York City, NY 10001

Building Type:	**Education**	Score Date:	**03/09/2023**
Gross Floor Area:	**125,000 ft²**	Building ID #:	**26706**
Climate Zone:	**4A**	Climate Description:	**Mixed - Humid**
Year Built:	**1932**	Software Release:	2023.0.0.486

Upgrade Score **10**

Estimated Savings[1] **47%**

Current Score **2.0**

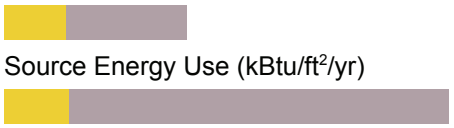
Standard Occupancy and Operating Conditions

Number of Assumed Occupants	**1250**
Hours of Operation	**40.75 hrs/wk**
Cooling Set Point	**75° F**
Heating Set Point	**70° F**
Misc. Energy Loads	**1.33 W/ft²**

Estimated Source Energy Use and Carbon Emissions

	Source EUI (kBtu/ft²/yr)	Emissions (kg CO_2e/ft²/yr)
Current	**202**	**5.84**
Upgraded	**107**	**2.92**

Energy Use Intensity by Fuel Type



Fuel Type [Site EUI , Source EUI]

- Natural Gas [27.8, 29.2]
- Electricity [54.9, 172.4]
- District Hot Water [0.0, 0.0]
- District Steam [0.0, 0.0]
- Fuel Oil [0.0, 0.0]
- Propane [0.0, 0.0]
- District Chilled Water [0.0, 0.0]

The **Building Energy Asset Score** is a national rating system developed by the U.S. Department of Energy. The **Score** reflects the energy efficiency of a building based on the building's structure, heating, cooling, ventilation, and hot water systems. The building's **Structure and Systems** are individually evaluated and ranked. The **Upgrade Opportunities** page provides recommendations for how to improve the building's energy efficiency, increase the building's Asset Score, and save money.

[1] Savings reflect the reduction in source energy that would result from undertaking all of the user-selected energy efficiency measures identified on the **Upgrade Opportunities** page. Actual savings will depend on a variety of factors including actual operating conditions.

This report is based on self-reported building information. http://energy.gov/eere/buildings/building-energy-asset-score

U.S. DEPARTMENT OF ENERGY

UPGRADE OPPORTUNITIES

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Cost Effective Upgrade Opportunities	Energy Savings [3]	Cost[4]
Building Envelope		
• Seal building envelope reducing air infiltration† - *Learn More*	Low	$$
• Upgrade roof insulation in block Block 1 for Roof 1.† - *Learn More*	Low	$-$$
• Upgrade wall insulation in block Block 1 for Wall 1.† - *Learn More*	Low	$$-$$$
• Upgrade to high efficiency windows in block Block 1 for Window 1.† - *Learn More*	Medium	$$-$$$
Lighting Systems		
• Upgrade to LED fixtures in block Block 1 for Fixture 1.† - *Learn More*	Medium	$
• Upgrade to LED fixtures in block Block 1 for Fixture 2.† - *Learn More*	Medium	$
HVAC Systems and Controls		
• Lower VAV box minimum flow setpoints in block Block 1 - *Learn More*	High	$$
• Add air-side economizer in block Block 1 - *Learn More*	Medium	$-$$
• Add variable frequency drive to condenser pumps in block Block 1 - *Learn More*	Low	$$
• Implement chilled water temperature reset in block Block 1 - *Learn More*	Medium	$
• Upgrade cooling plant pumping system to constant primary -variable secondary pumping system in block Block 1 - *Learn More*	Medium	$$
• Implement demand controlled ventilation (DCV) in block Block 1 - *Learn More*	Medium	$$
• Implement fan static pressure reset in block Block 1 - *Learn More*	Medium	$
• Implement supply air temperature reset in block Block 1 - *Learn More*	Medium	$

[3] The energy savings range reflects the expected incremental savings for the overall building associated with the specific efficiency upgrade opportunity assuming all other recommended upgrades have already been implemented. This assumption is made to avoid double counting of savings. The ranges reflect site energy savings and are based on standard operating assumptions, unless actual operating conditions are provided by the user.
[4] The costs are based on Advanced Energy Retrofit Guide and RS Means. The costs are replacement costs, not incremental costs. The costs do not include local incentives. Costs are shown as a range ($ = low cost, $$ = medium cost, $$$ = high cost).
† User-selected energy efficiency measure

UPGRADE OPPORTUNITIES

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Cost Effective Upgrade Opportunities	Energy Savings [3]	Cost[4]
Service Hot Water Systems		
• Add low flow faucets in block Block 1 - *Learn More*	Low	$$

[3] The energy savings range reflects the expected incremental savings for the overall building associated with the specific efficiency upgrade opportunity assuming all other recommended upgrades have already been implemented. This assumption is made to avoid double counting of savings. The ranges reflect site energy savings and are based on standard operating assumptions, unless actual operating conditions are provided by the user.
[4] The costs are based on Advanced Energy Retrofit Guide and RS Means. The costs are replacement costs, not incremental costs. The costs do not include local incentives. Costs are shown as a range ($ = low cost, $$ = medium cost, $$$ = high cost).
† User-selected energy efficiency measure

HEALTH AND SAFETY IMPACT

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Health and Safety Impact of Upgrade Opportunities

Building Envelope	Health and Safety Impact
• Seal building envelope reducing air infiltration†	Air sealing can improve thermal comfort by reducing cold drafts, and reduce occupant exposure to outdoor air pollutants, such as vehicle exhaust. It may also help with moisture and pest control by eliminating entry points. But with less outside air being provided by air infiltration, it is important to make sure that the building has sufficient ventilation after air sealing, such as by HVAC commissioning, otherwise indoor air quality may deteriorate.
• Upgrade roof insulation in block Block 1 for Roof 1.†	Better insulation may improve thermal comfort. However, adding insulation can disturb existing building materials that may contain asbestos. Consult an accredited asbestos professional to determine if this is a concern.
• Upgrade wall insulation in block Block 1 for Wall 1.†	Better insulation may improve thermal comfort. But note that adding insulation can disturb existing building materials that may contain asbestos. Consult an accredited asbestos professional to determine if this is a concern.
• Upgrade to high efficiency windows in block Block 1 for Window 1.†	Selecting windows with the appropriate heat gain and visible light transmittance can help maintain thermal comfort and improve occupant satisfaction with indoor lighting level.

Lighting Systems

• Upgrade to LED fixtures in block Block 1 for Fixture 1.†	Indoor lighting retrofit has the potential to improve lighting quality and occupant satisfaction. Retrofits that also allow occupants to have more lighting control can provide greater flexibility to adapt and respond to changing needs.
• Upgrade to LED fixtures in block Block 1 for Fixture 2.†	Indoor lighting retrofit has the potential to improve lighting quality and occupant satisfaction. Retrofits that also allow occupants to have more lighting control can provide greater flexibility to adapt and respond to changing needs.

HVAC Systems and Controls

HEALTH AND SAFETY IMPACT

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Health and Safety Impact of Upgrade Opportunities

• Lower VAV box minimum flow setpoints in block Block 1	Lowering VAV box minimum flow setpoints can improve thermal comfort by avoiding overcooling in summer and overheating during the winter. However, this may impact the outside air ventilation rate. Therefore, increase attention is needed to make sure that adequate outside air ventilation rate is provided to maintain indoor air quality.
• Add air-side economizer in block Block 1	Adding an economizer will increase outside air and can improve indoor air quality. In offices and schools, studies found that more outside air can reduce building-related symptoms and improves work performance and learning. Increasing ventilation can also mean more outdoor air pollutants may be brought indoors, such as vehicle exhausts if the outside air intake is near an area with significant traffic. It is therefore even more important to use high efficiency air filters, such as MERV 13 or better, to removal particulate matter (PM).
• Add variable frequency drive to condenser pumps in block Block 1	This measure is not expected to directly impact occupant health and safety. Follow commissioning, operation and maintenance, and performance monitoring best practices to enable efficient operation.
• Implement chilled water temperature reset in block Block 1	Adjustment of HVAC system control can affect thermal comfort by impacting zone or room level relative humidity. Monitor indoor temperature, relative humidity, and supply air flow, or conduct occupancy survey, to check for potential impact.
• Upgrade cooling plant pumping system to constant primary -variable secondary pumping system in block Block 1	This measure can affect thermal comfort as the pumping system upgrade may improve chilled water flow compared to current condition. Monitor indoor temperature, relative humidity, and supply air flow, or conduct occupancy survey, to check for potential impact.
• Implement demand controlled ventilation (DCV) in block Block 1	For DCV with zone level CO2 sensors, the control system can reduce the risk of having insufficient outside air ventilation when the space is occupied. Adequate ventilation is important for occupant health, work performance and learning. Adequate ventilation is also important for reducing building-related symptoms and mitigating infectious disease airborne transmission risks. For proper functioning of DCV, it is important that CO2 sensors are calibrated regularly.
• Implement fan static pressure reset in block Block 1	Adjustment of HVAC system control can affect thermal comfort. Monitor indoor temperature, relative humidity, and supply air flow, or conduct occupancy survey, to check for potential impact.
• Implement supply air temperature reset in block Block 1	Adjustment of HVAC system control can affect thermal comfort. Monitor indoor temperature, relative humidity, and supply air flow, or conduct occupancy survey, to check for potential impact.

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Health and Safety Impact of Upgrade Opportunities

Service Hot Water Systems

• Add low flow faucets in block Block 1	This measure is not expected to directly impact occupant health and safety. However, installing low flow faucets is an important strategy for water conservation and sustainability.

STRUCTURES AND SYSTEMS

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

ABOUT THE BUILDING SYSTEMS

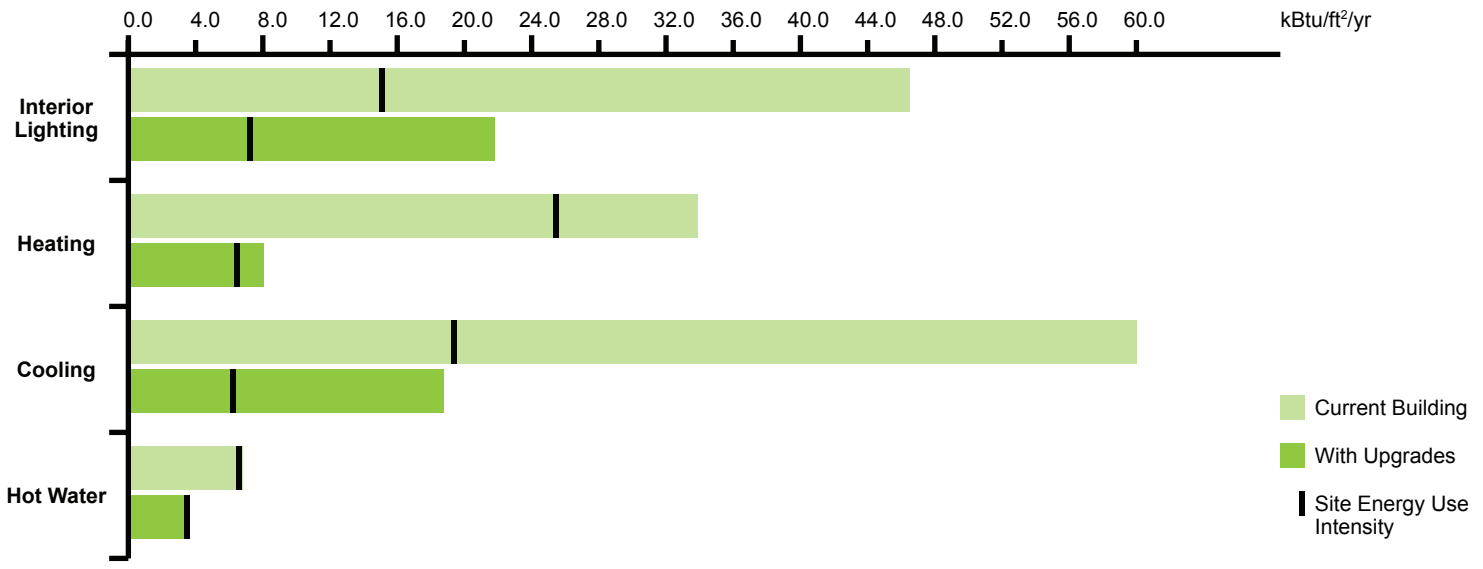
	Ranking[5]
Interior Lighting	Good
Whole Building HVAC System TSPR	Fair
Air Handler 1	Fair

ABOUT THE BUILDING ENVELOPE

	Ranking[5]
Roof U-Value, Non-Attic (Btu/ft²·h·°F)	Fair
Walls U-Value, Framed (Btu/ft²·h·°F)	Fair
Windows U-Value (Btu/ft²·h·°F)	Fair
Walls + Windows U-Value (Btu/ft²·h·°F)	Fair
Window Solar Heat Gain Coefficient	Good

*System evaluation is not based on a verified TSPR

SOURCE ENERGY USE INTENSITY BY END USE

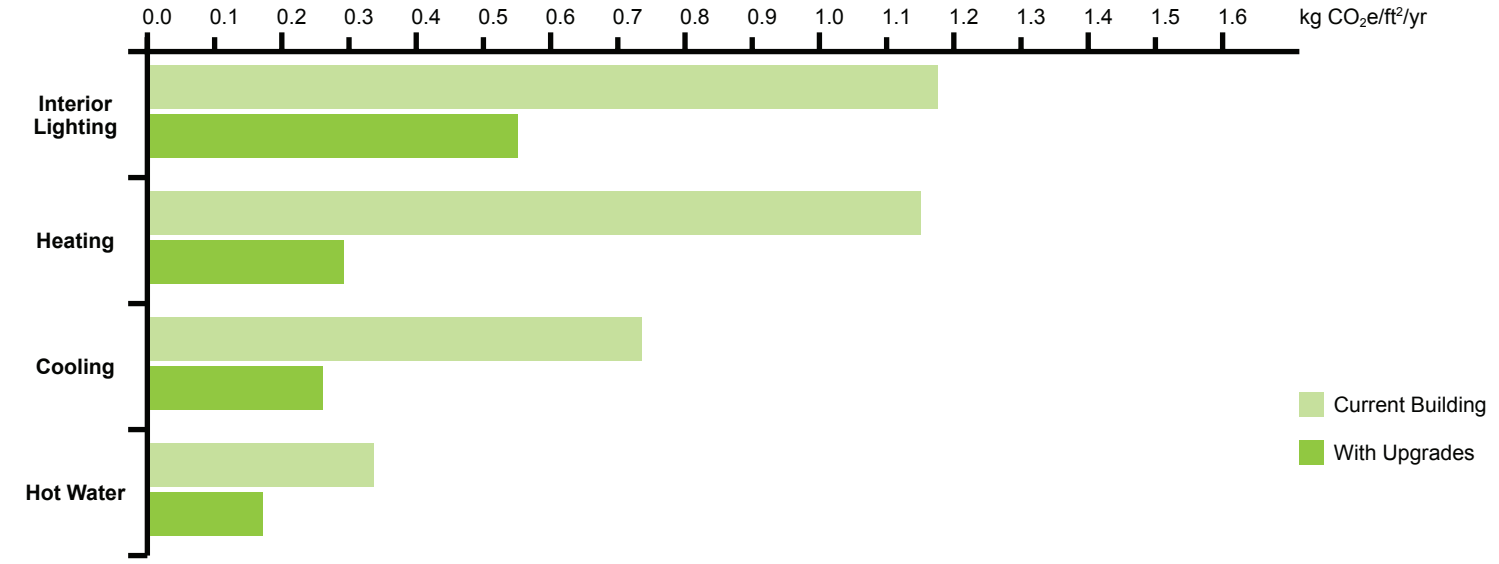


[5] Ranking Range:
Fair: Building Envelope or Building Systems are less efficient than a typical building built to the AHSRAE 90.1-2004 energy code.
Superior: Building Envelope is more efficient than a typical building built to the AHSRAE 90.1-2013 energy code. Building Systems exceed the highest efficiency levels with market viable technologies.
Good: Building Envelope or Building Systems are between Fair and Superior.
N/A: The building does not have a heating or a cooling system, or the loads are too low for the system to be effectively ranked.

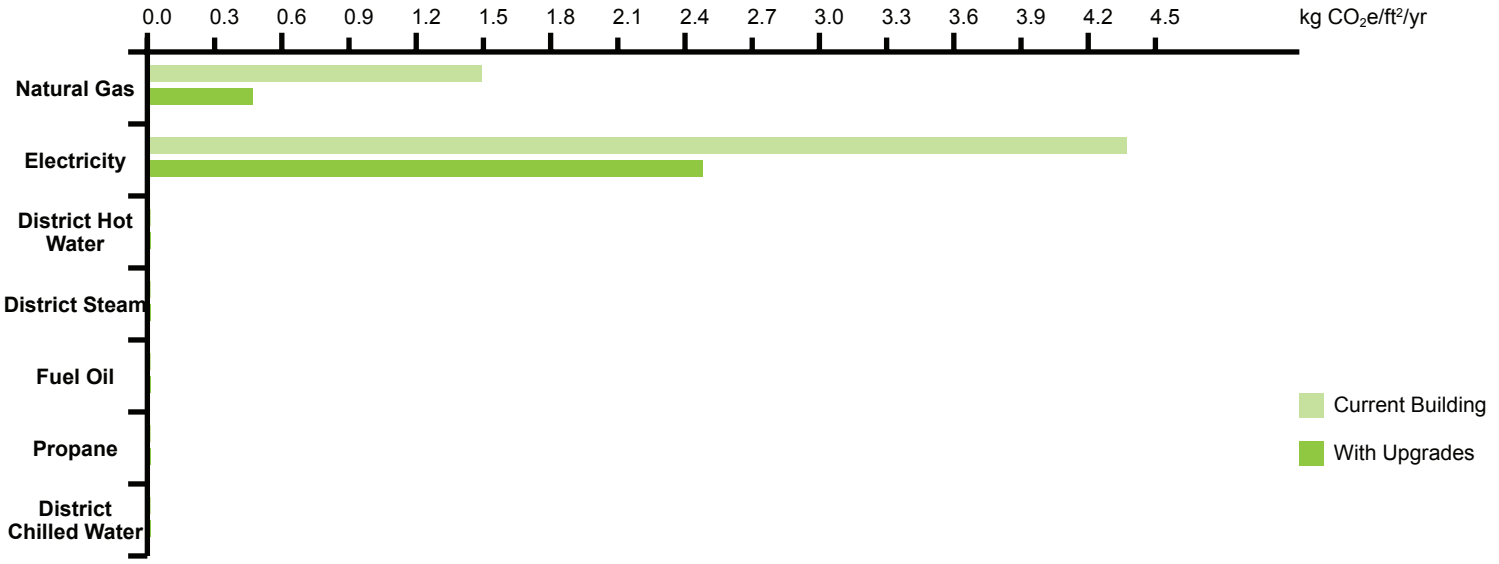
Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

CARBON EMISSIONS BY END USE[6]



CARBON EMISSIONS BY FUEL TYPE[6]



[6] Carbon dioxide equivalent (CO_2e) greenhouse gas annual emission rates are calculated by multiplying theannual energy use rates for each end use and fuel type by emission factors that are specific to each fuel typeand then by dividing by the total floor area for the affected blocks. The emission factors for electricity areprovided by U.S. EPA Power Profiler v9.1 and are specific to the eGRID subregions that are assigned to the ZIPcode for the building. The emissions factors for electricity do not include gross grid loss (line loss).

BUILDING ENVELOPE INFORMATION

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

BUILDING CHARACTERISTICS SUMMARY

Plants

Plant Loop 1

Plant Loop Type	Cooling Loop
Chiller Pump Control	Constant Primary
Pump Power	22.0 W/gpm
Equipment Type	Chiller
Compressor Type	Scroll/Screw
Condenser Type	Water
Condenser Loop	Plant Loop 3
Efficiency	3.0 COP

Plant Loop 3

Plant Loop Type	Condenser Loop
Pump Power	19.0 W/gpm
Equipment Type	Chiller
Compressor Type	Scroll/Screw
Condenser Type	Water
Condenser Loop	Plant Loop 3
Efficiency	3.0 COP
Equipment Type	Cooling Tower
Cooling Tower Fan Control	Variable Speed

Plant Loop 2

Plant Loop Type	Heating Loop
Boiler Pump Control	Constant Primary
Pump Power	22.0 W/gpm
Equipment Type	Boiler
Fuel Type	Natural Gas
Draft Type	Mechanical
Thermal Efficiency	77.5% Et

Notes:
[1] 'Total Gross Wall Area' includes both opaque and glazed wall area.
[2] Window includes all vertical fenestration, including curtainwall and storefront.
[3] Total Gross Roof Area' includes both opaque and glazed roof area.

BUILDING ENVELOPE INFORMATION

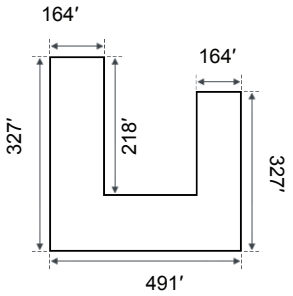
Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

Block 1 CHARACTERISTICS SUMMARY

Geometry

Above Ground:	1 floor
Below Ground:	0 floors
Floor-to-Floor Height	13.00 ft
Floor-to-Ceiling Height:	13.00 ft
Orientation:	0.0° from North
Use Type:	Education



Current Building

Roof

Roof	Roof 1
Roof Type	Built-up w/ metal deck
Intended Occupancy Type	Non-Residential

Skylights

No Skylights

Floor

Floor	Floor 1
Floor Type	Slab-on-Grade
Intended Occupancy Type	Non-Residential

Walls and Windows

	Current Building
All Surfaces	
Wall	Wall 1
Wall Type	Brick/Stone on steel frame
Intended Occupancy Type	Non-Residential
Window	Window 1
Window Framing Type	Metal w/ Thermal Breaks
Window Glass Type	Single Pane
Window Gas Fill Type	None
Intended Occupancy Type	Non-Residential
Window SHGC	0.54
Window VT	0.25
Window Layout	Continuous
Window-to-Wall Ratio	0.25
Exterior Shading Type	No Shading

Infiltration

Energy code the building complies with	Estimated*

Lighting

Lighting Power Density	1.6 W/ft²
Fixture	Fixture 1
Lighting Type	Fluorescent T8
Mounting Type	Surface
Lamp Wattage	32 W/lamp
Lamps per Fixture	1
Percent Served	76.5%
Fixture	Fixture 2
Lighting Type	Compact Fluorescent
Mounting Type	Surface
Lamp Wattage	13 W/lamp
Lamps per Fixture	1
Percent Served	23.5%

Heating/Cooling

Thermal Zone Layout	Perimeter and core
Perimeter Zone Depth	15.0 ft
Primary Heating/Cooling System	Air Handler 1
System Type	VAV with HW Reheat
Cooling Equipment	
Cooling Source	Plant
Plant Loop	Plant Loop 1 - Cooling Loop - Chiller
Heating Equipment	
Heating Source	Plant
Plant Loop	Plant Loop 2 - Heating Loop - Boiler

Notes:
[1] 'Total Gross Wall Area' includes both opaque and glazed wall area.
[2] Window includes all vertical fenestration, including curtainwall and storefront.
[3] Total Gross Roof Area' includes both opaque and glazed roof area.

BUILDING ENVELOPE INFORMATION

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

	Current Building
Distribution	
Distribution Type	Multiple Zone
Terminal	
Terminal Unit	Reheat
Reheat Source	Hot Water Plant
Hot Water Plant Loop	Plant Loop 2
Minimum Air Flow Fraction	0.5
Fan Systems	
Total System Fan Power	1.3 W/CFM
Fan Control	Variable Air Volume
Supply Air Temperature (SAT) Reset	None

Service Water Heating

Water Heater	Natural Gas
Fuel Type	Natural Gas
Water Heater Efficiency	77.00%

Operations

The information in this section is not required and does not affect the current Asset Score. If provided, it is only used to identify upgrade opportunities, which are considered in generating the potential score.

Operation	Using Standard Operations**

Notes:
[1] 'Total Gross Wall Area' includes both opaque and glazed wall area.
[2] Window includes all vertical fenestration, including curtainwall and storefront.
[3] Total Gross Roof Area' includes both opaque and glazed roof area.

BUILDING ENVELOPE INFORMATION

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

BUILDING ENVELOPE INFORMATION

Total Gross Above Grade Wall Area [1]	26950.0 ft²
Total Window Area [2]	6737.0 ft²
Building Window to Wall Ratio	25%
Total Below Grade Wall Area	0.0 ft²
Total Gross Roof Area [3]	125000.0 ft²
Total Skylight Area	0.0 ft²
Total Conditioned Floor Area	125000.0 ft²
Total Footprint Area	125000.0 ft²

Areas by Orientation

NORTH	
Gross Wall Area	6383.0 ft²
Window Area	1595.8 ft²
SOUTH	
Gross Wall Area	6383.0 ft²
Window Area	1595.8 ft²
EAST	
Gross Wall Area	7092.0 ft²
Window Area	1773.0 ft²
WEST	
Gross Wall Area	7092.0 ft²
Window Area	1773.0 ft²

Notes:
[1] 'Total Gross Wall Area' includes both opaque and glazed wall area.
[2] Window includes all vertical fenestration, including curtainwall and storefront.
[3] Total Gross Roof Area' includes both opaque and glazed roof area.

Building Name: **PS 118**

Gross Floor Area: **125,000 ft²**

SOFTWARE PROVENANCE

Asset Score/Audit Template	Version: 2023.0.0.486 Build: master_486
Asset Score Inference Web Service	Version 3.0.7545.16577
InferenceGenerator	2.0.7221.17585
fedsBackend Dynamic Link Library	7.0.0.1412K
Open Studio	2.9.1;
Energy-Plus	9.2;
Asset Score Open Studio Web Service	Asset Score Open Studio Web Service, Version 3.0.7547.23249, Sunday, August 30, 2020 12:54:58 PM
Open Studio Simulation	Release_5.3.6_20221110.0