HIGH PERFORMANCE RETROFIT
TRIBECA CONDO

COMPLEXITIES OF DESIGN IN A RETROFIT RESIDENTIAL MIDRISE

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AIR RIGHTS

- 5 EXISTING STORIES
- 5 NEW STORIES
- 62% EXG. FLOOR AREA, 38% NEW FLOOR AREA
- MIXED USE
  7 RESIDENTIAL
  1 COMMERCIAL
- LARGE APARTMENTS
  FULL FLOOR - 2700 SF
- LIMITED CELLAR
  MECHANICAL SPACE
- TFA = 14,725 SF (1381.18 m²)
SOLAR ACCESS

- HIGH NOON SUMMER SHADING
- FUTURE BUILDINGS - SHADOW EFFECT
- BUILT UP SURROUNDINGS CREATE WINTER SHADING ON LOWER BUILDINGS

SUMMER SOLSTICE - 12 PM

WINTER SOLSTICE - 1:30 PM
- Typical multifamily ventilation design incorporates central stacks creating stack effect
- Pressure differential
- The higher the building, the more this effect is accentuated
COMBINED MECHANICAL VENTILATION

- AIR TO AIR HEAT PUMP
- PROVIDES HEATING AND COOLING
- LOSSNAY ERV (ENERGY RECOVERY VENTILATION)
- METAL DUCTS WITH INSULATION
SEPARATED MECHANICAL VENTILATION

- AIR TO AIR HEAT PUMP
- PROVIDES HEATING AND COOLING
- ZEHNDER ERV (ENERGY RECOVERY VENTILATION)
- USES 3" COMFOTUBES INSTEAD OF METAL INSULATED DUCTS
RESULTING BENEFITS

Heating demand: 19.74 kWh/(m²a)

Lossnay

16% Reduction

Heating demand: 16.63 kWh/(m²a)

Zehnder Confo-Air 550

SEPARATED
- The compactness of a building is indicated by the A/V ratio.
- This ratio is between external surface area and internal volume.
- The size of a building also influences the A/V ratio.
- This ratio has a considerable influence on overall energy demand.
A/V : 0.34
THERMAL ANALYSIS

CONTINUOUS STEEL ANGLE

STEEL ANGLE ON OUTRIGGERS
SCHUCO WINDOWS
- U - .15
- 2011 MIN.
  ENERGY CODE 0.5
AIR BARRIERS

- DETAILING MAINTAINS CONTINUOUS AIR BARRIER
- NEGOTIATES EXISTING AND NEW CONDITIONS
RESILIENT DESIGN

Generator

Concrete Bathtub

Sandy Storm Surge

FEMA FLOOD MAP
HIGH INDOOR AIR QUALITY

- LOW VOC PAINTS AND FINISHES
- FORMALDEHYDE FREE PLYWOOD