PVEDi

NEW YORK CITY COLLEGE OF TECHNOLOGY
CITY TECH

*A GLIMPSE OF THE WORK WE HERE AT **PVEDI** DO IN NYC*

OUR OFFICE @ THE ENGINEERING SOCITIES BUILDING (25 WEST 39TH STREET)

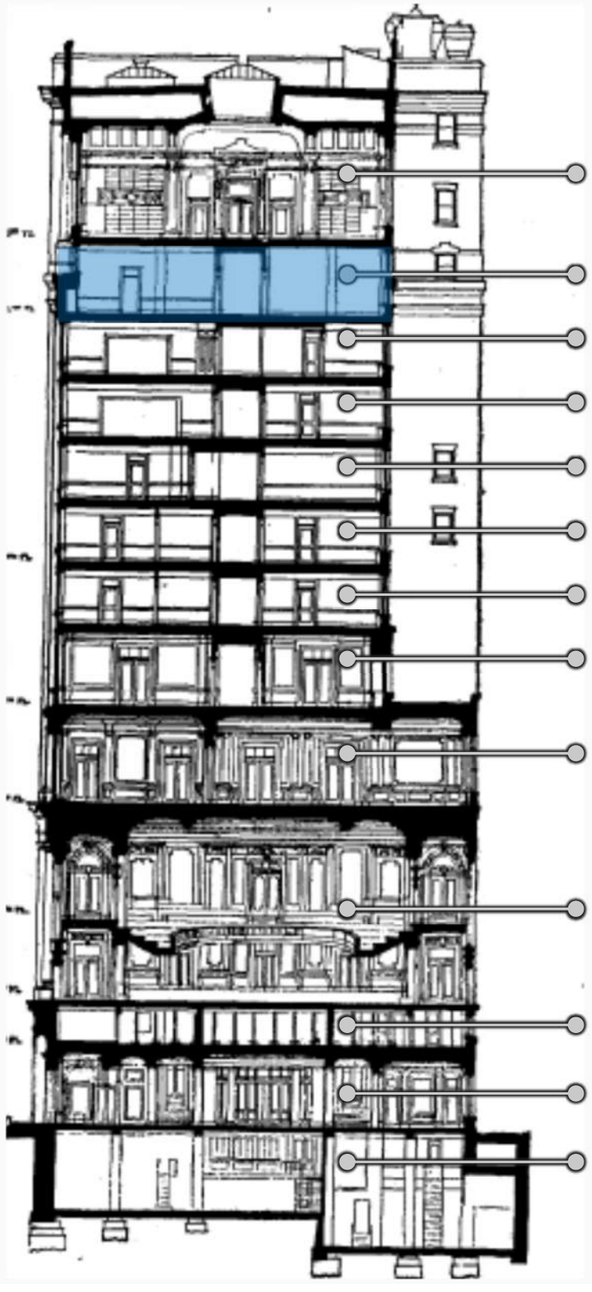
A 16-story, turn-of-the-century structure located at 25 West 39th Street. The building was originally constructed in 1907 with the purpose of housing multiple engineering societies under the same roof.

With his vision of bringing all the engineering societies under one roof, philanthropist Andrew Carnegie presented a generous $1.5 million gift to the four engineering societies:

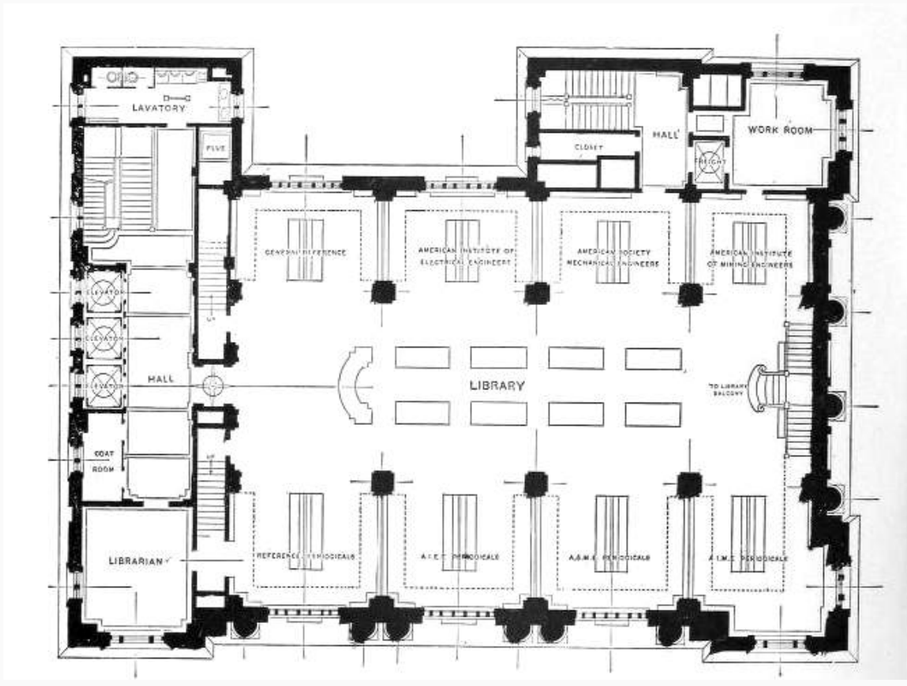
- *American Institute of Electrical Engineers*
- *American Society of Mechanical Engineers*
- *American Institute of Mining Engineers*
- *American Society of Civil Engineers.*

The building provided private floors for each of the societies as well as common areas, including a large auditorium and a library that would become a group home for each of their respective libraries.

LET'S LOOK AT OUR BUILDING – THE AUDITORIUM (THIS FLOOR)



The upper two floors would be devoted to the libraries of the various societies. The top level was to be dedicated to reading and reference rooms, "working alcoves," and rooms for photographic reproduction, drawing, and similar library work; while the floor beneath was to be devoted to the book stacks.



…and this is where our office is!

NYC FAMILIES OF BUILDINGS

The NYC DOB regulates over 1,000,000 buildings (not hyperbole)…

- Residential (R): – Tenement dwellings +/- 300K
  – 1&2 private dwellings +/- 520K
- Commercial (C): +/- 10K
- Publicly-owned (P): +/- 20K
- Others (O): +/- 10K

There are approximately 2,500 new buildings being constructed yearly in NYC (0.25%). This potentially puts the construction site in contact with approximately 7,500 existing buildings (one existing building per each side).

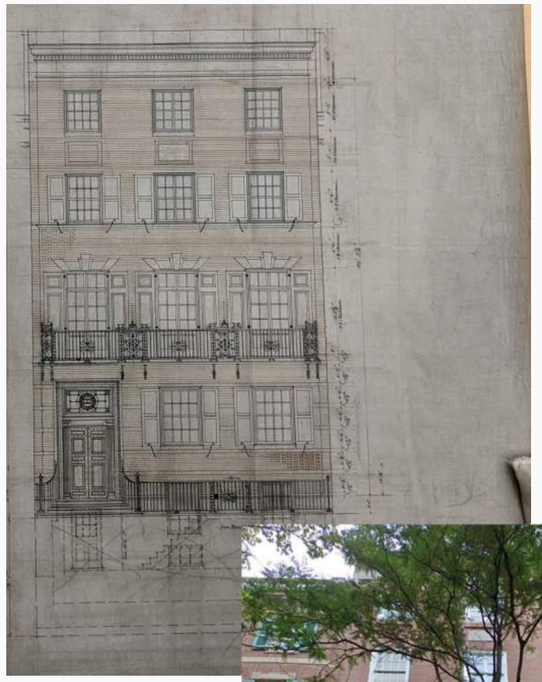
Lynch, T. A. (2014). Matching Existing Buildings to Earlier Codes [PowerPoint slides]. Retrieved from https://www.nyc.gov/assets/buildings/pdf/matching_existing_buildings_to_earlier_codes.pdf

https://www.nyc.gov/assets/buildings/pdf/Evaluations_of_Adjacent_Buildings.pdf

…but did you know…

DID YOU KNOW THAT…

…that 90% OF THE BUILDINGS IN NYC WILL STILL BE HERE IN 50 YEARS?



New buildings are fun to design, but **old/existing** buildings are here to stay…

…and a lot of them have a wide range of unsafe structural issues, outdated lighting systems, carbon-heavy mechanical/HVAC systems, and derelict electrical distribution systems.

They need PVEDI's help.

*They need **YOUR** help.*

PVEDI'S PROFESSIONAL SERVICES IN NEW YORK CITY

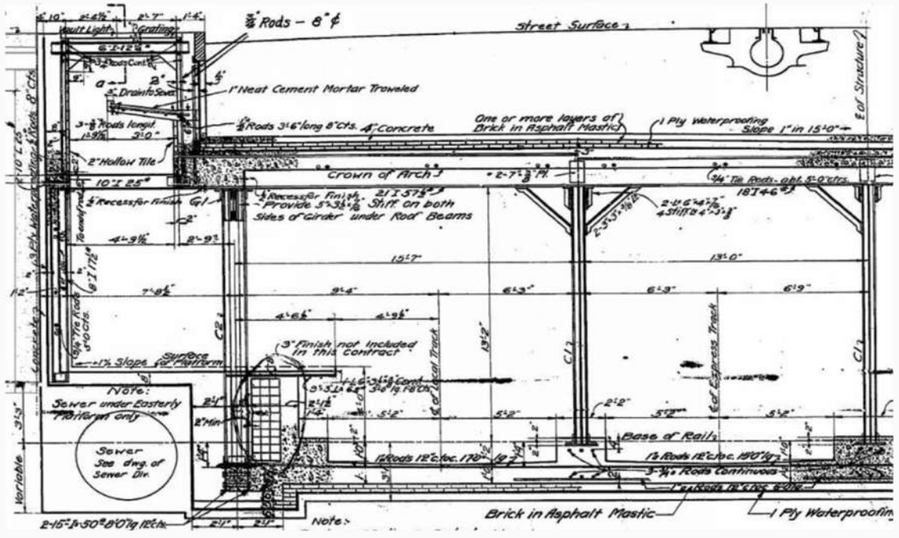
- ***Structural Engineering***
  - *Structural Surveys and Capacity Analysis of Buildings, Structures, and Facades*
  - *Design of Structural Solutions for Existing and New Buildings*
- ***Architectural Design***
  - *Existing Building Assessments and Renovations*
  - *Adaptive Reuse and Change of Use Design*
- ***Mechanical Engineering***
  - *HVAC Surveys and Energy/Decarbonization Studies of Existing Buildings*
  - *Designs of HVAC Repairs, Energy Upgrades, and Fit-Outs in Existing Buildings*
- ***Electrical Engineering***
  - *Surveys of Power Distribution, Electrical Capacity, and Lighting in Existing Buildings*
  - *Design of Electrical/Fire-Alarm Systems for Existing and Electrified Buildings*
- ***Plumbing Engineering***
  - *Surveys of Water, Waste, Gas and Sprinkler Systems in Existing Buildings*
  - *Design of Plumbing/Fire-Protection Systems for Existing and Repurposed Buildings*

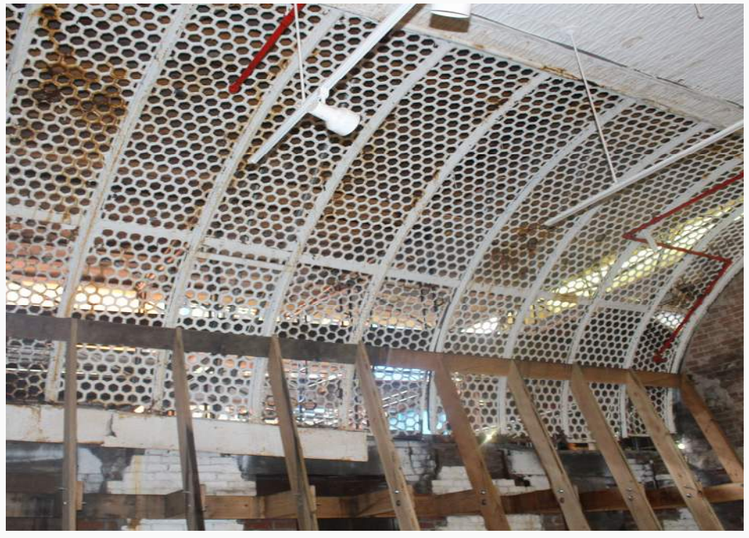
…and much, much more…

- ***Local Law 11***
  - *Façade Inspections (Every 5 Years)*
- ***Local Law 37***
  - *Retaining Wall Inspections (Every 5 Years)*
- ***Local Law 84***
  - *Energy Benchmarking (Annually)*
- ***Local Law 87***
  - *Detailed Energy Studies (Every 10 Years)*
  - *Retro-Commissioning (Every 10 Years)*
- ***Local Law 92/94***
  - *Green Roofs and PV Systems (As Needed)*
- ***Local Law 97***
  - *Greenhouse Gas Emissions Reporting (Annually)*
- ***Local Law 126***
  - *Parking Garage Structural Inspection (Every 6 Years)*
  - *Parapet Structural Inspections (Annually)*
- ***Local Law 132***
  - *Electrical Sub-Metering Installation (One Time)*
- ***Local Law 134***
  - *Lighting Upgrades in Existing Buildings (One Time)*

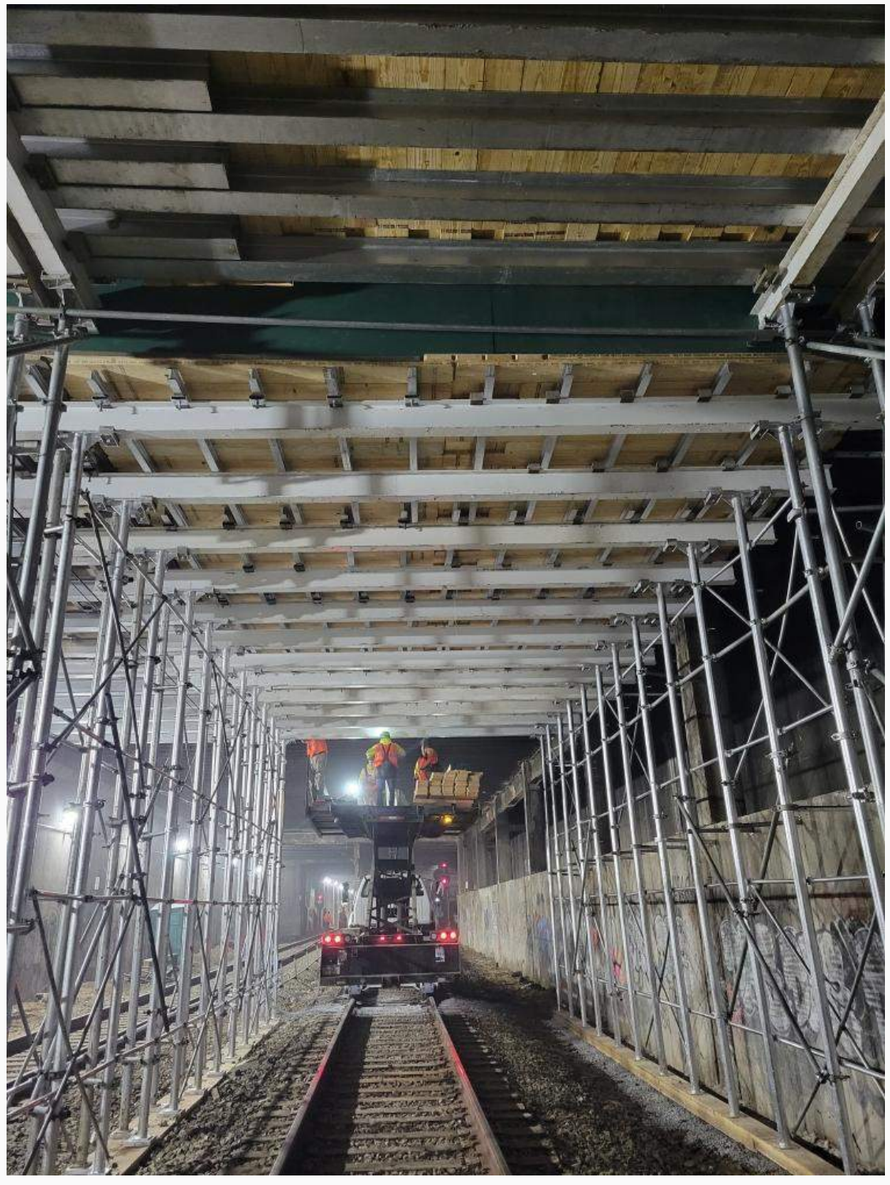
SEEKING CIVIL/STRUCTURAL ENGINEERS TO HELP EXISTING STRUCTURES IN NYC STAY UP

343 Hoyt (Brooklyn)

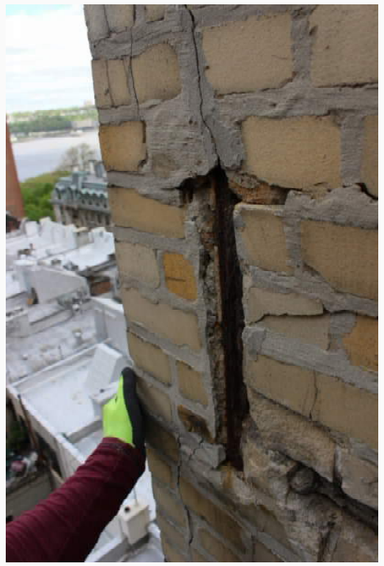


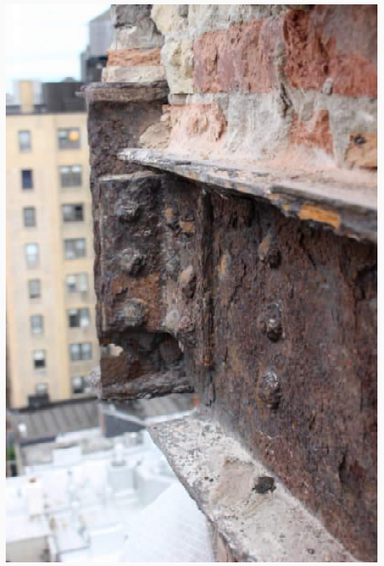


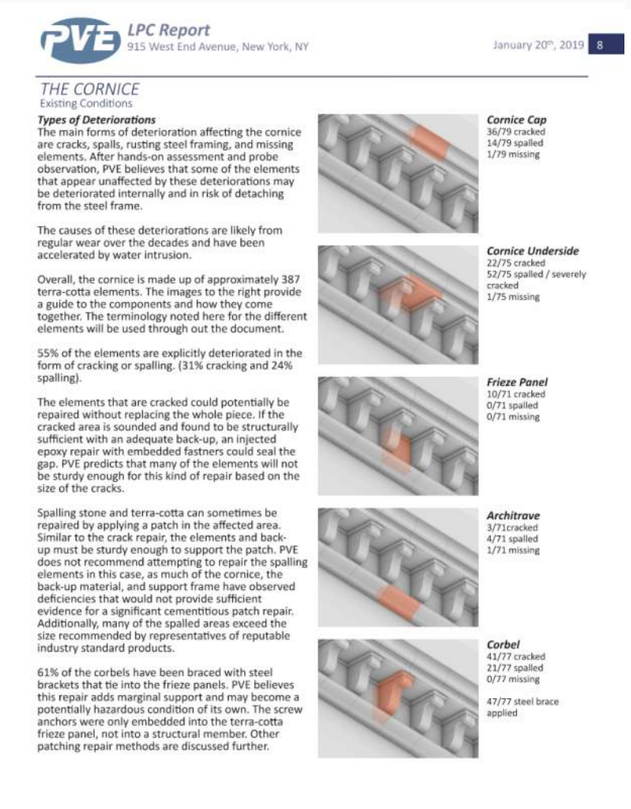
…INCLUDING EMERGENCY WORK OF COLLAPSED STRUCTURES THROUGHOUT THE CITY!



SEEKING CIVIL ENGINEERS + ARCHITECTS TO RESTORE THOUSANDS OF NYC BUILDING FACADES







PVE LPC Report
915 West End Avenue, New York, NY
January 20th, 2019 8

THE CORNICE
Existing Conditions

Types of Deteriorations
The main forms of deterioration affecting the cornice are cracks, spalls, rusting steel framing, and missing elements. After hands-on assessment and probe observation, PVE believes that some of the elements that appear unaffected by these deteriorations may be deteriorated internally and in risk of detaching from the steel frame.

The causes of these deteriorations are likely from regular wear over the decades and have been accelerated by water intrusion.

Overall, the cornice is made up of approximately 387 terra-cotta elements. The images to the right provide a guide to the components and how they come together. The terminology noted here for the different elements will be used through out the document.

55% of the elements are explicitly deteriorated in the form of cracking or spalling. (31% cracking and 24% spalling).

The elements that are cracked could potentially be repaired without replacing the whole piece. If the cracked area is sounded and found to be structurally sufficient with an adequate back-up, an injected epoxy repair with embedded fastners could seal the gap. PVE predicts that many of the elements will not be sturdy enough for this kind of repair based on the size of the cracks.

Spalling stone and terra-cotta can sometimes be repaired by applying a patch in the affected area. Similar to the crack repair, the elements and back-up must be sturdy enough to support the patch. PVE does not recommend attempting to repair the spalling elements in this case, as much of the cornice, the back-up material, and support frame have observed deficiencies that would not provide sufficient evidence for a significant cementitious patch repair. Additionally, many of the spalled areas exceed the size recommended by representatives of reputable industry standard products.

61% of the corbels have been braced with steel brackets that tie into the frieze panels. PVE believes this repair adds marginal support and may become a potentially hazardous condition of its own. The screw anchors were only embedded into the terra-cotta frieze panel, not into a structural member. Other patching repair methods are discussed further.

Cornice Cap
36/79 cracked
14/79 spalled
1/79 missing

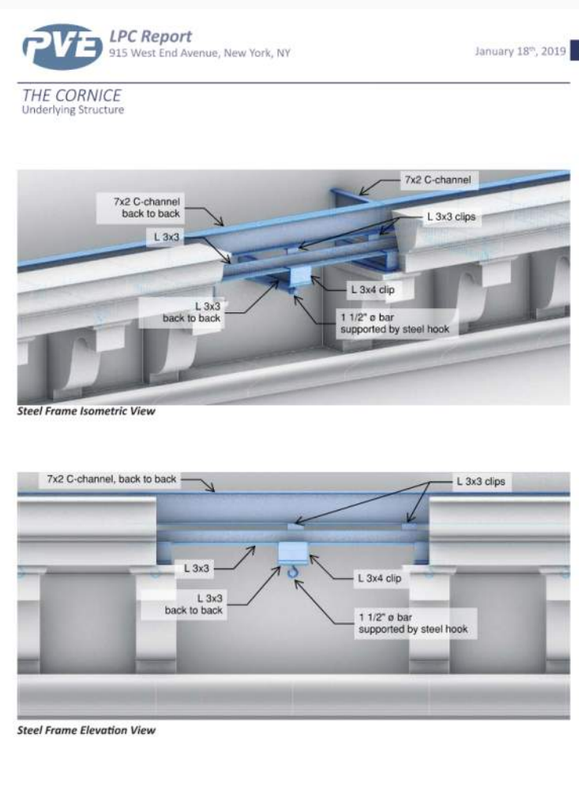
Cornice Underside
22/75 cracked
52/75 spalled / severely cracked
1/75 missing

Frieze Panel
10/71 cracked
0/71 spalled
0/71 missing

Architrave
3/71cracked
4/71 spalled
1/71 missing

Corbel
41/77 cracked
21/77 spalled
0/77 missing

47/77 steel brace applied



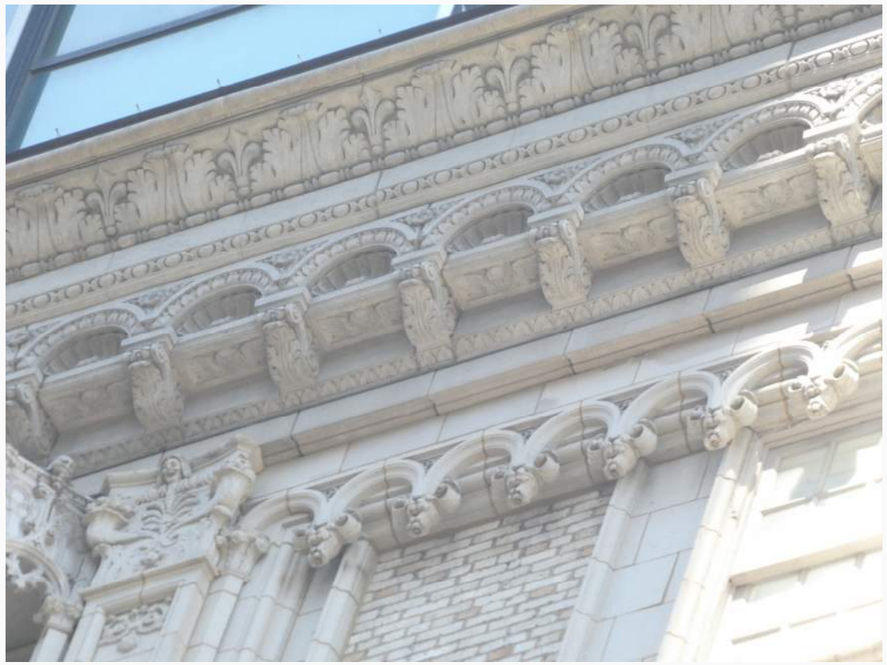
PVE LPC Report
915 West End Avenue, New York, NY
January 18th, 2019 14

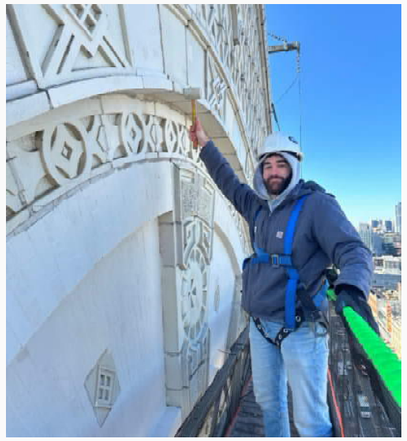
THE CORNICE
Underlying Structure

Steel Frame Isometric View

Steel Frame Elevation View

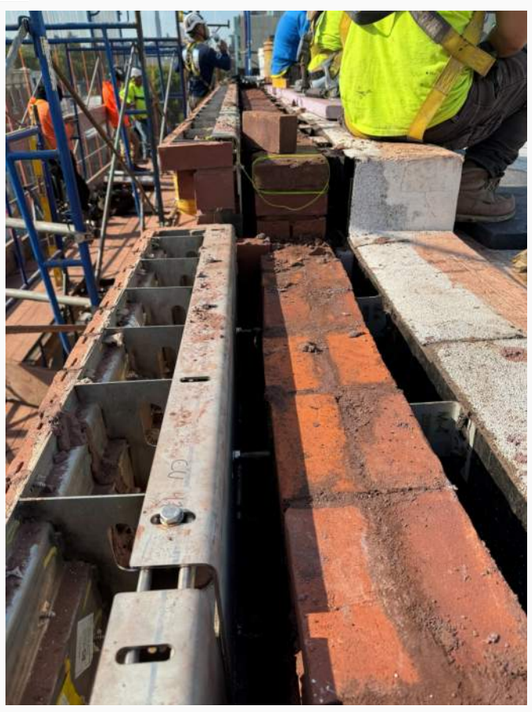
…INCLUDING PRESERVATION OF HISTORICAL AND LANDMARK FACADES….



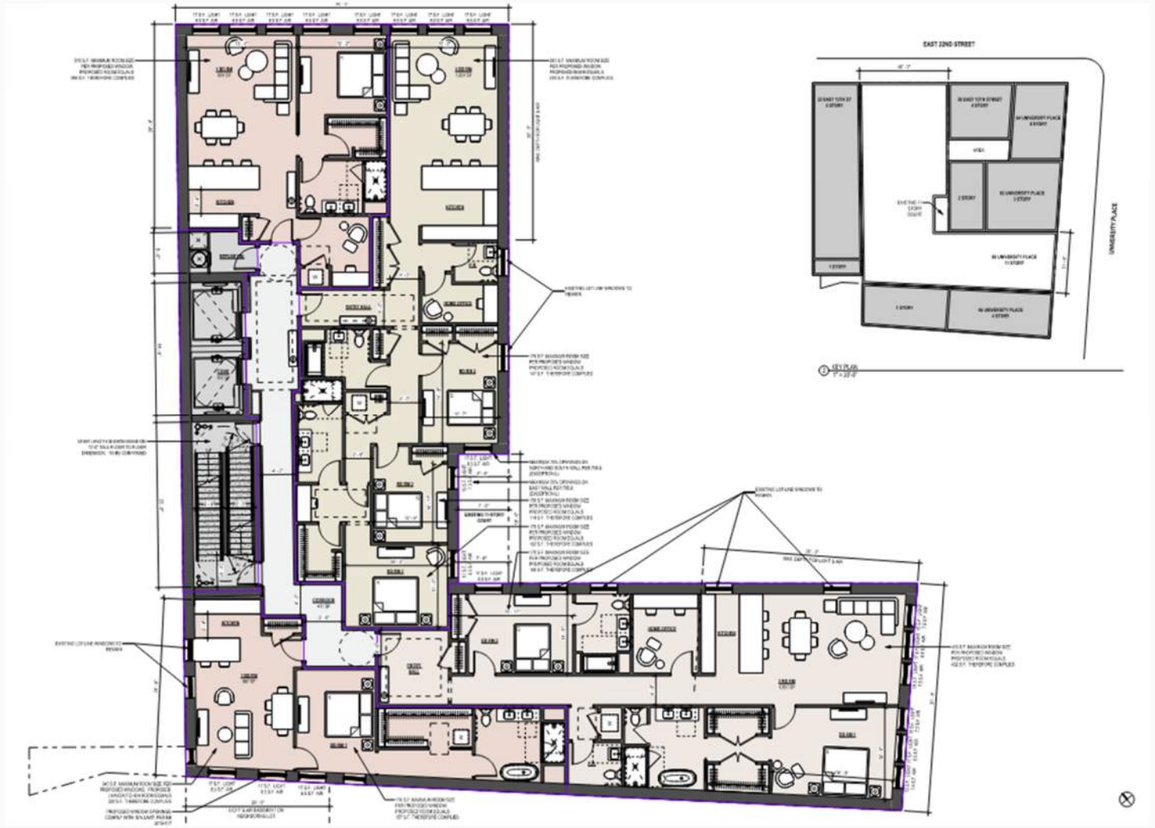


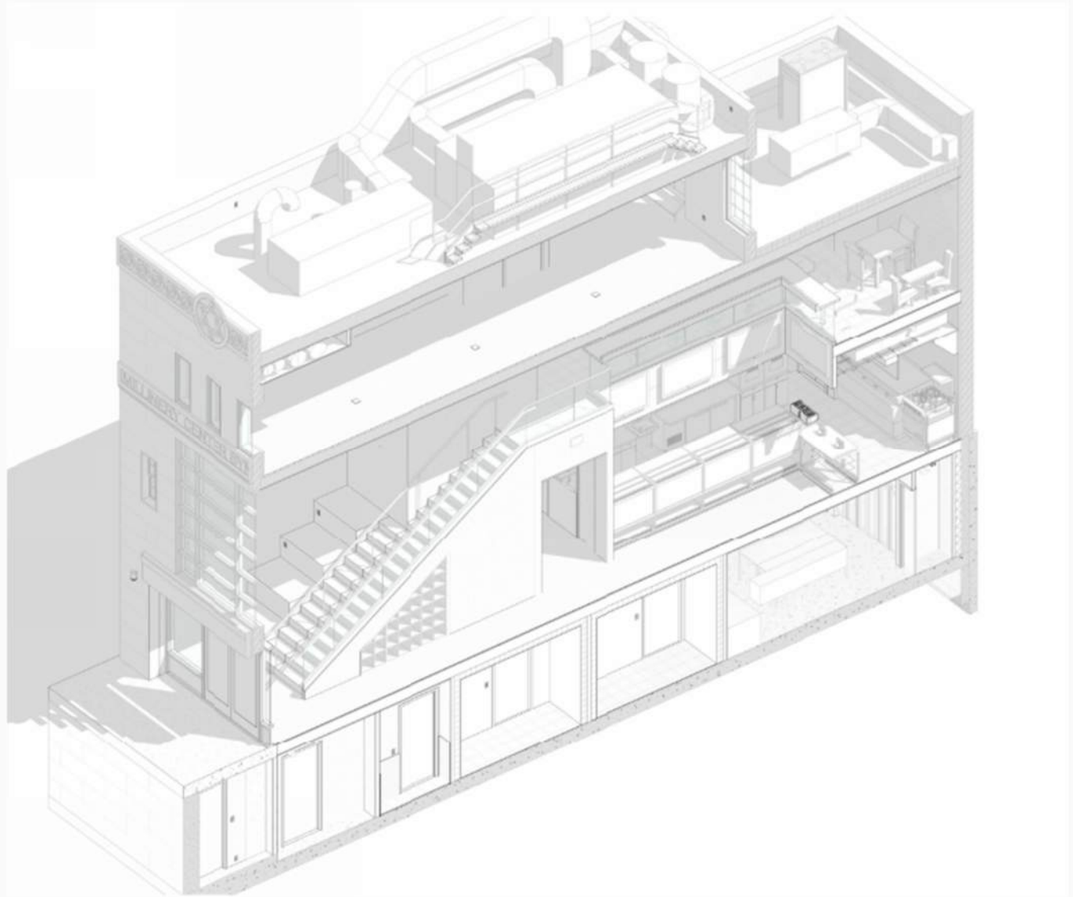
2090 7th Avenue*(Manhattan)*

…AND UPGRADING OLD FACADES WITH NEW ENERGY-EFFICIENT FACADES!

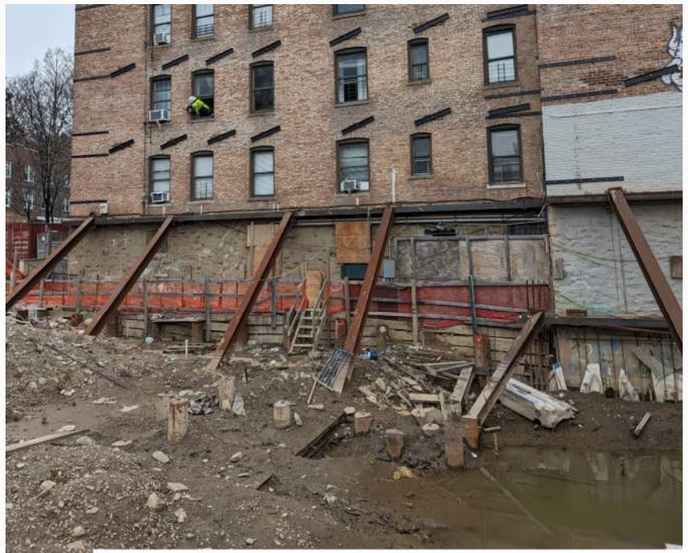


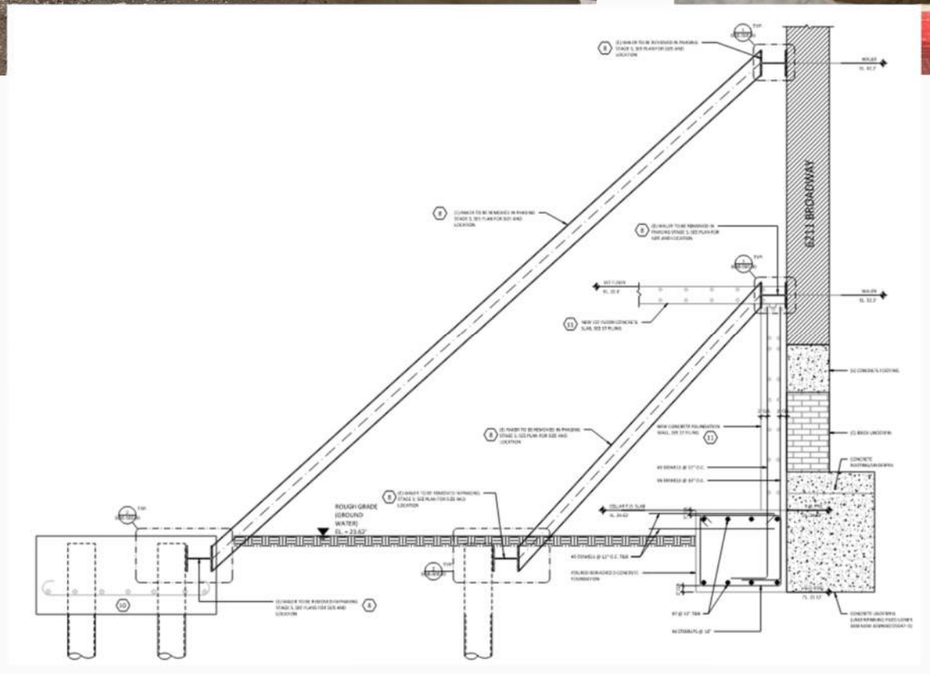
SEEKING ARCHITECTS TO REPURPOSE OLD BUILDINGS FOR NEW ADAPTIVE REUSES.

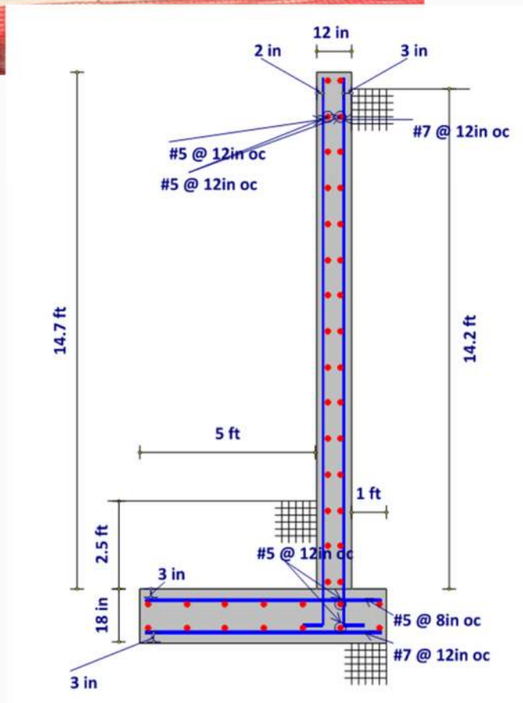


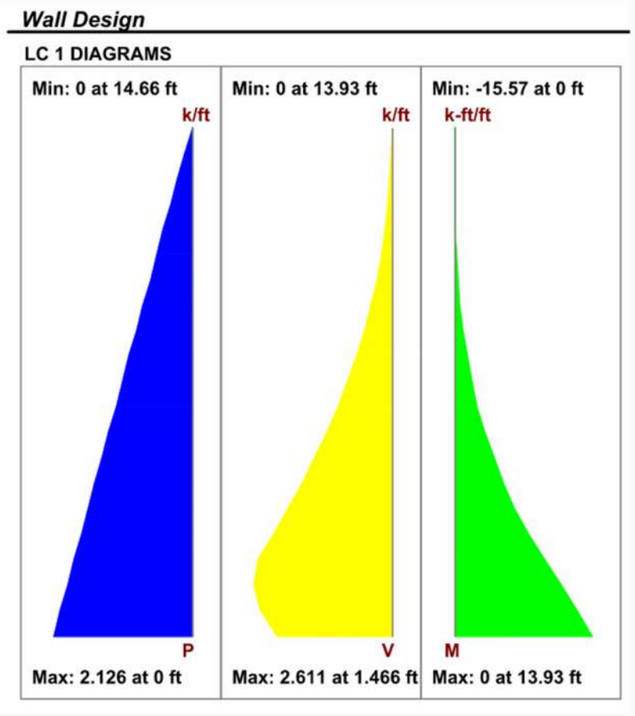


PVEDI'S PROFESSIONAL SERVICES – GEOTECHNICAL

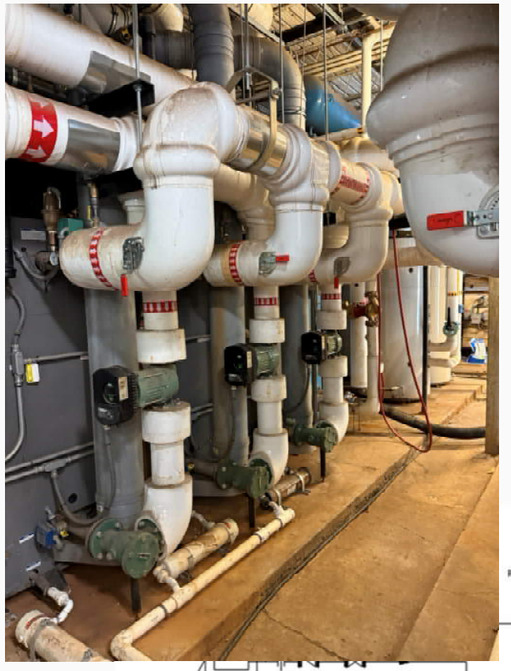


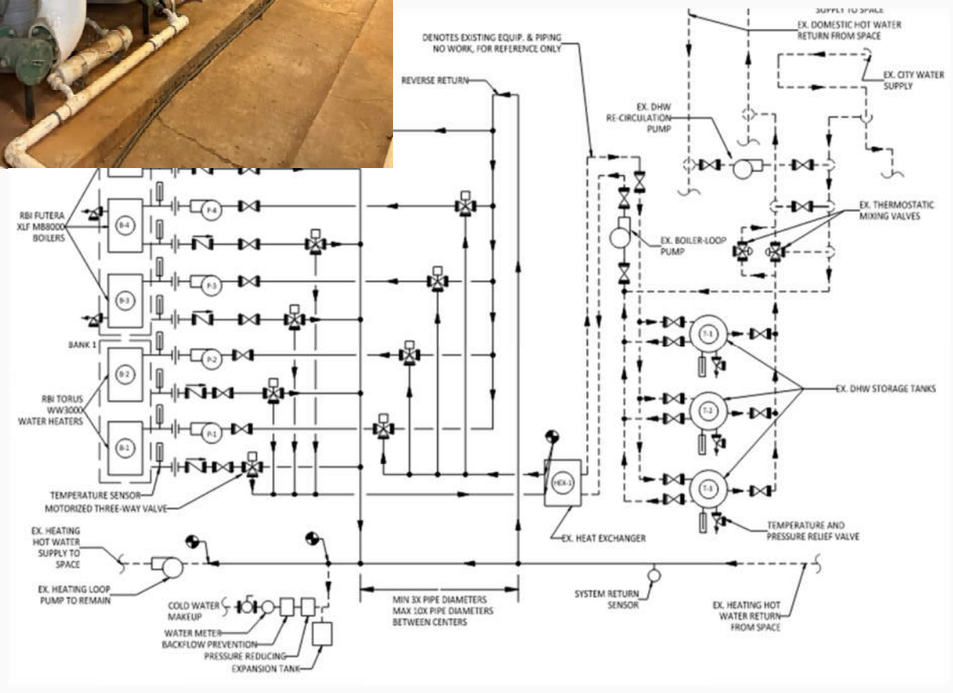


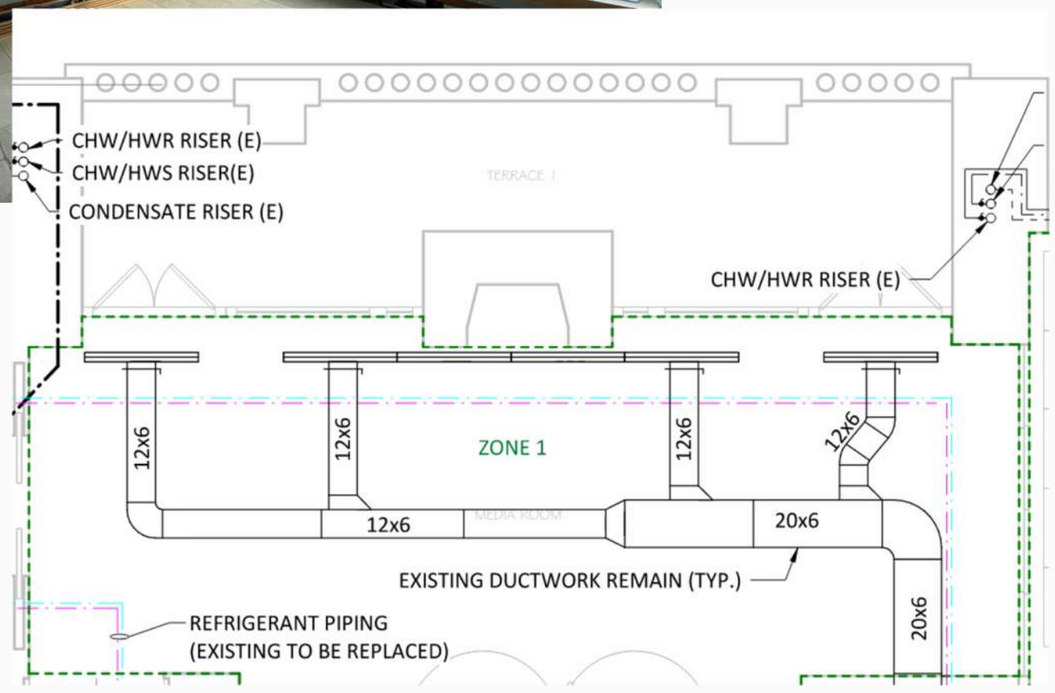




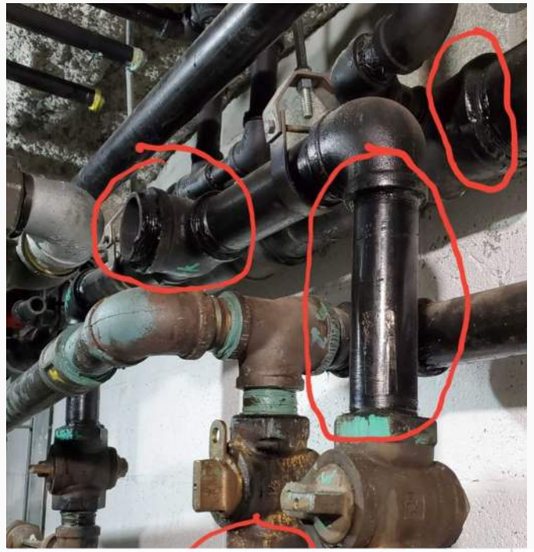
SEEKING MECHANICAL ENGINEERS TO DESIGN AND SURVEY HVAC SYSTEMS FOR BUILDINGS…

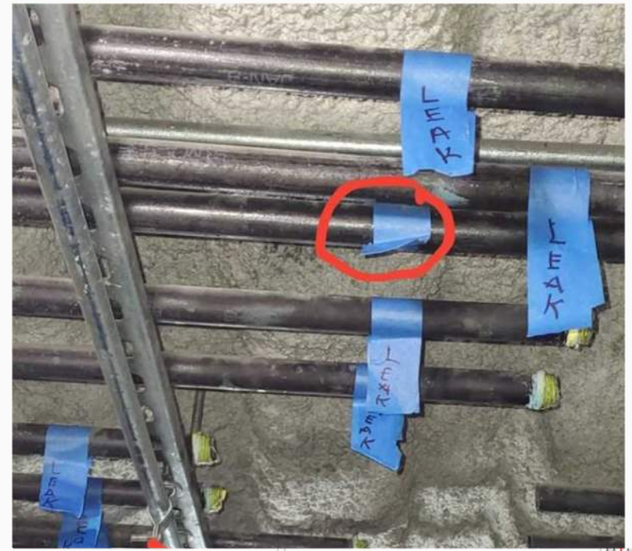


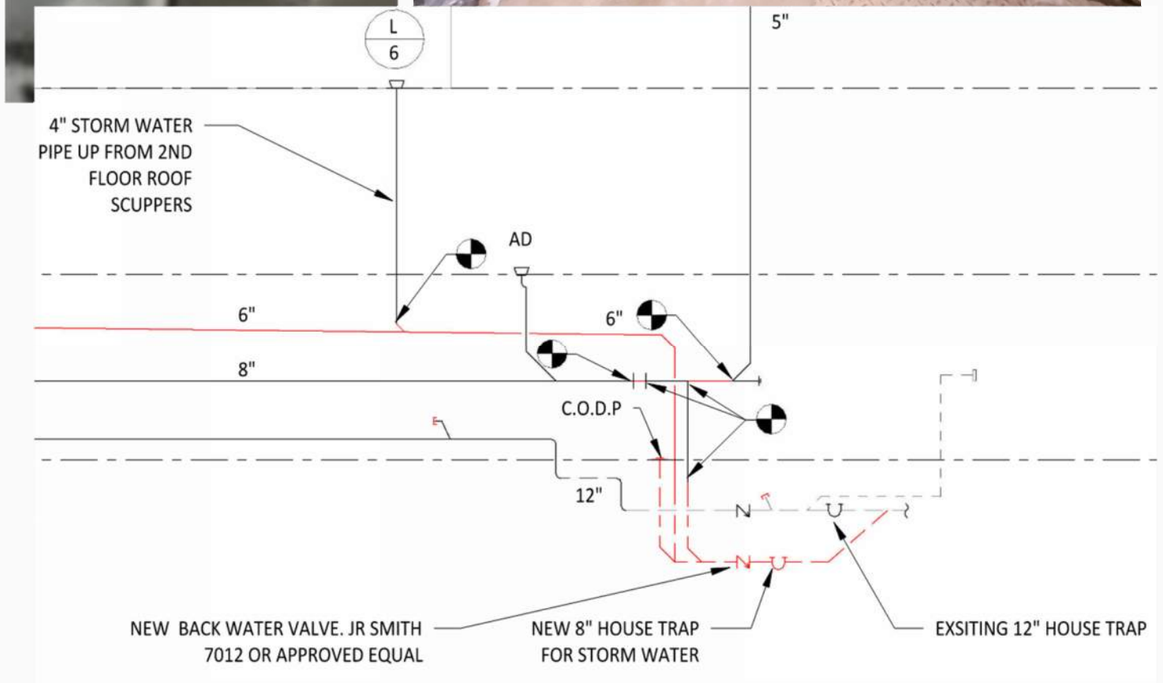


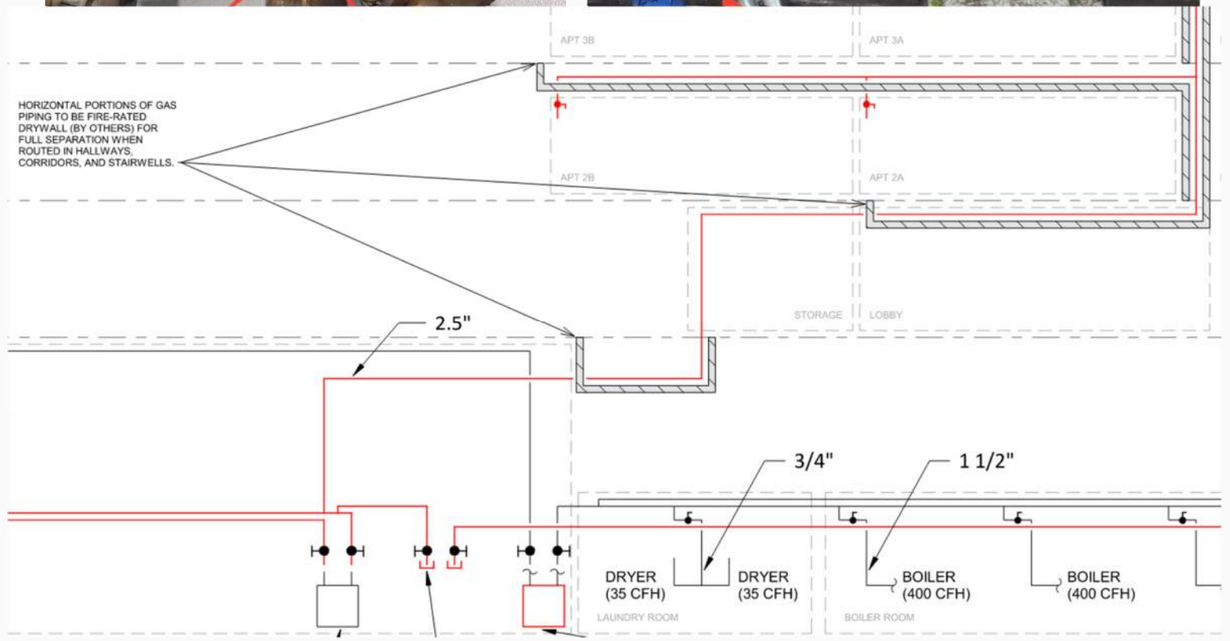


…INCLUDING WATER, WASTE, GAS, SPRINKLER, AND MISCELLANEOUS PLUMBING SYSTEMS!

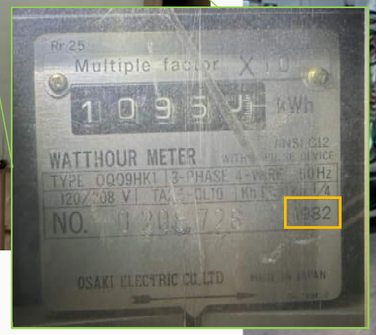


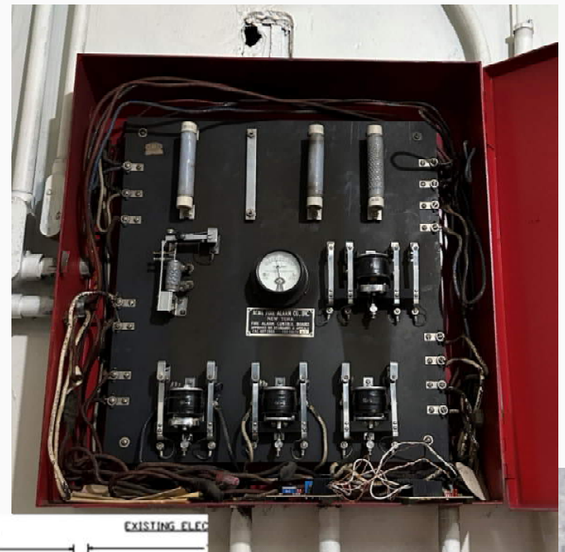


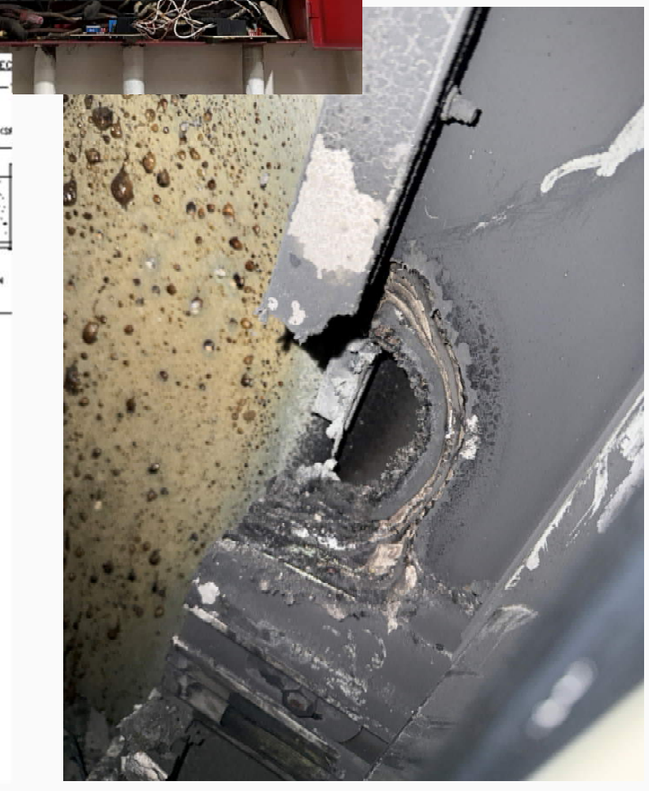


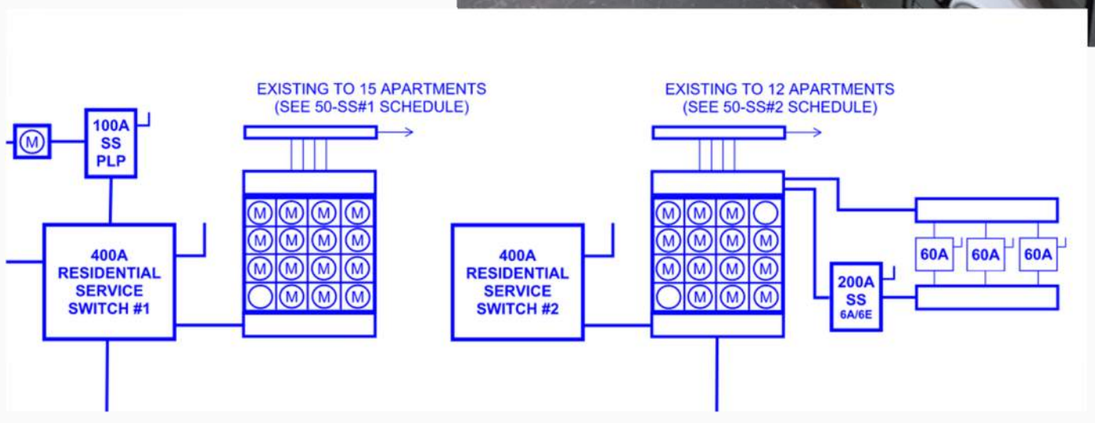


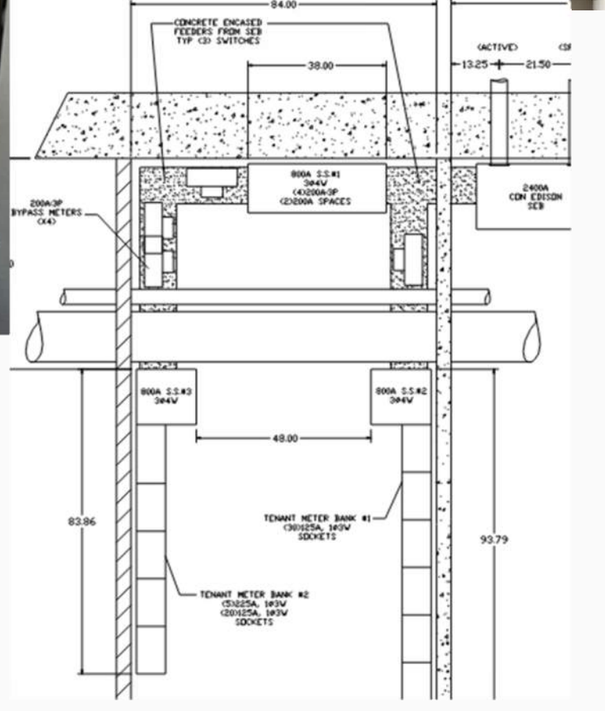
SEEKING ELECTRICAL ENGINEERS TO SURVEY AND DESIGN BUILDING ELECTRICAL DISTRIBUTION



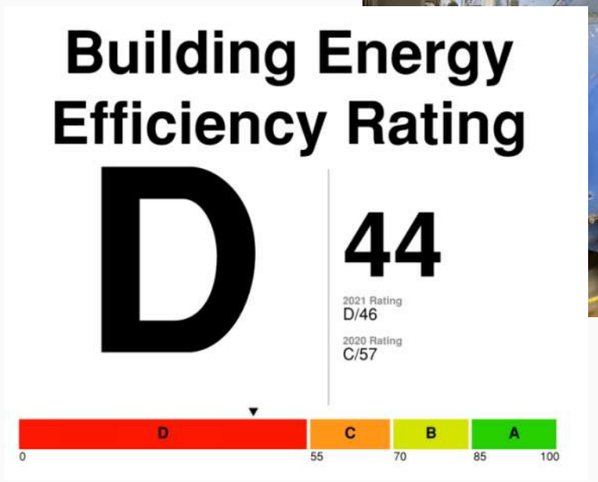


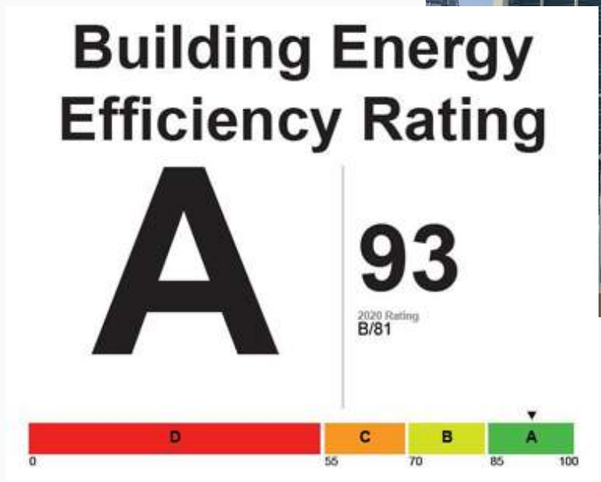


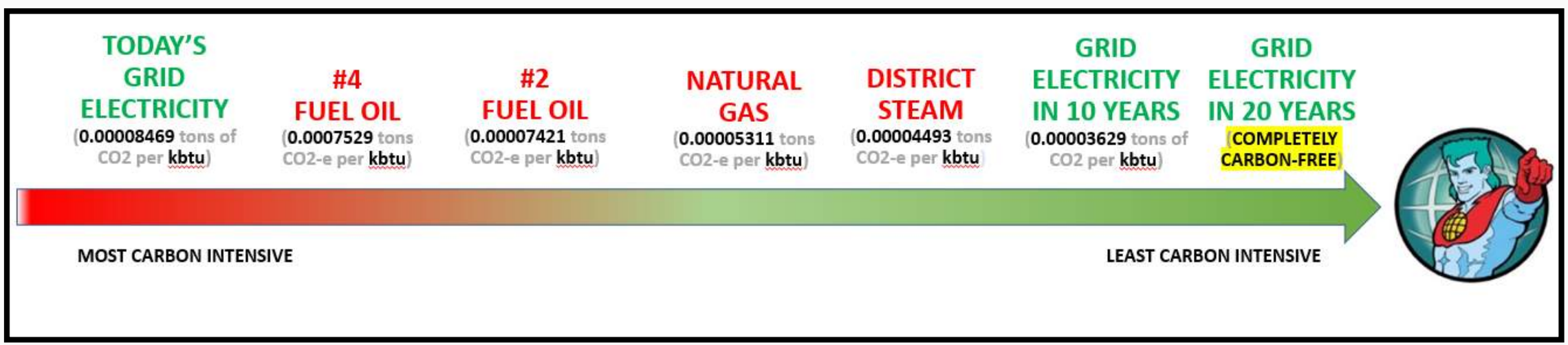




…WHILE CONSIDERING AND IMPROVING A BUILDING'S IMPACT ON THE ENVIRONMENT!







THANK YOU!

PVEDi