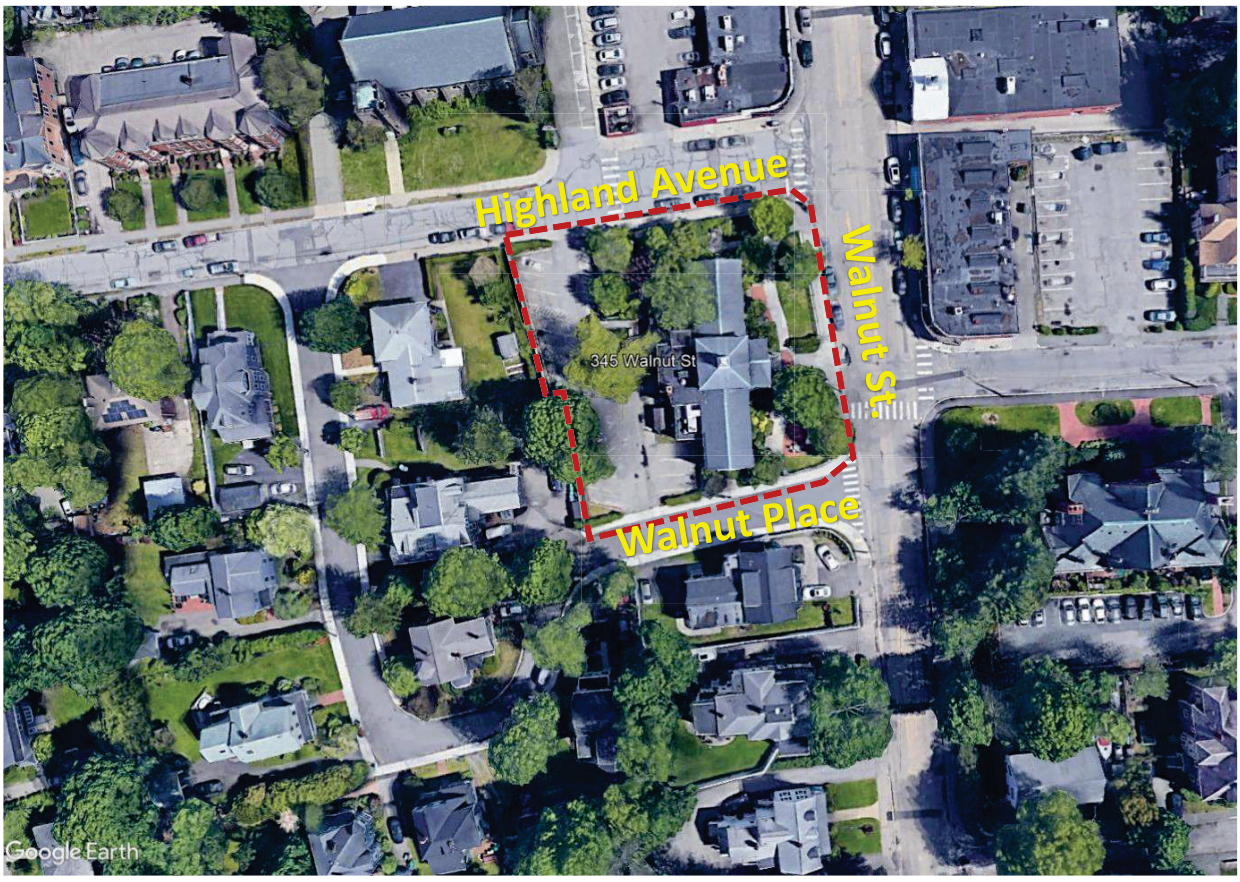
NewCAL

Public Facility Committee Presentation
July 13, 2022




Parking Options
125 Municipal Parking Spaces
Newtonville Avenue
AUSTIN STREET
AUSTIN STREET PARKING
WALNUT STREET
Madison Avenue
LOWELL AVENUE
On Street Parking Spaces
HIGHLAND AVENUE
345 WALNUT STREET
31 Onsite Parking
Washington


HIGHLAND AVENUE
WALNUT STREET
WALNUT PLACE
TRANSPLANT TREE
TREE TO REMAIN, TYP.
TREE REMOVAL, TYP.
1 14" Cherry Fair Canopy=12' radius
2 11" Yellowwood Good Canopy=6' radius
3 19" Tulip Tree Fair Canopy=10' radius
4 4" Stewardia Good Canopy=6' radius
5 19" Red Maple Good Canopy=15' radius
6 16" Littleleaf Linden Good Canopy=12' radius
7 15" Cherry Poor Canopy=12' radius
8 7" Crabapple Fair Canopy=6' radius
9 24" Crabapple Fair Canopy=15' radius
10 (4) 2"+3"+4"+4" Multi-stem Tree Lilac Fair Canopy=6' radius
11 (4) 3"+5"+5"+6" Multi-stem Tree Sweet Bay Magnolia Poor Canopy=6' radius
12 (4) 4"+6"+6"+7" Multi-stem Tree Dogwood Fair Canopy=12' radius
13 24" Willow Fair Canopy=20' radius
14 39" Honeylocust Good Canopy=21' radius
15 29" Norway Maple Fair Canopy=20' radius
16 (2) 11"+12" Multi-stem Norway Maple Fair Canopy=15' radius

Corner of Highland Avenue and Walnut Street

Landscape, Paver and Planting Site Plan Approval Submission

COUNTRY CASUAL TEAK | FOXHALL 6FT. BENCH

FORMS+SURFACES | TRIO 6FT. BENCH

FORMS+SURFACES | VAYA 6FT. BENCH

VESTRE | AIR 6FT. BENCH

VESTRE | URBAN 6FT. BENCH

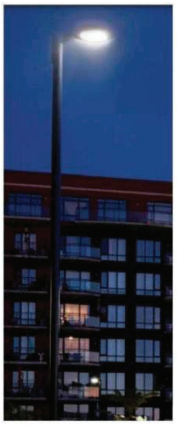
EXISTING SITE

RECTANGLE
7 7/8"X3 7/8"X2 3/4"
IMPERVIOUS PAVER

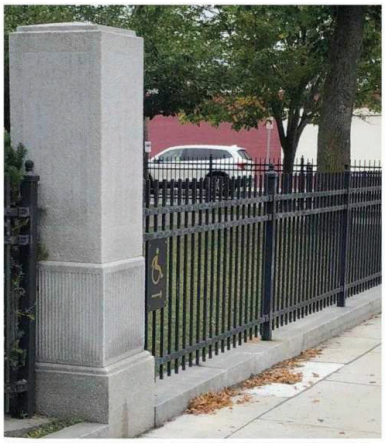
UNILOCK | HOLLAND STONE

GRANITE
(SMOOTH ENDURACOLOR)

ALMOND GROVE BLEND
(SMOOTH ENDURACOLOR)



LUMENPULSE | PURE-100

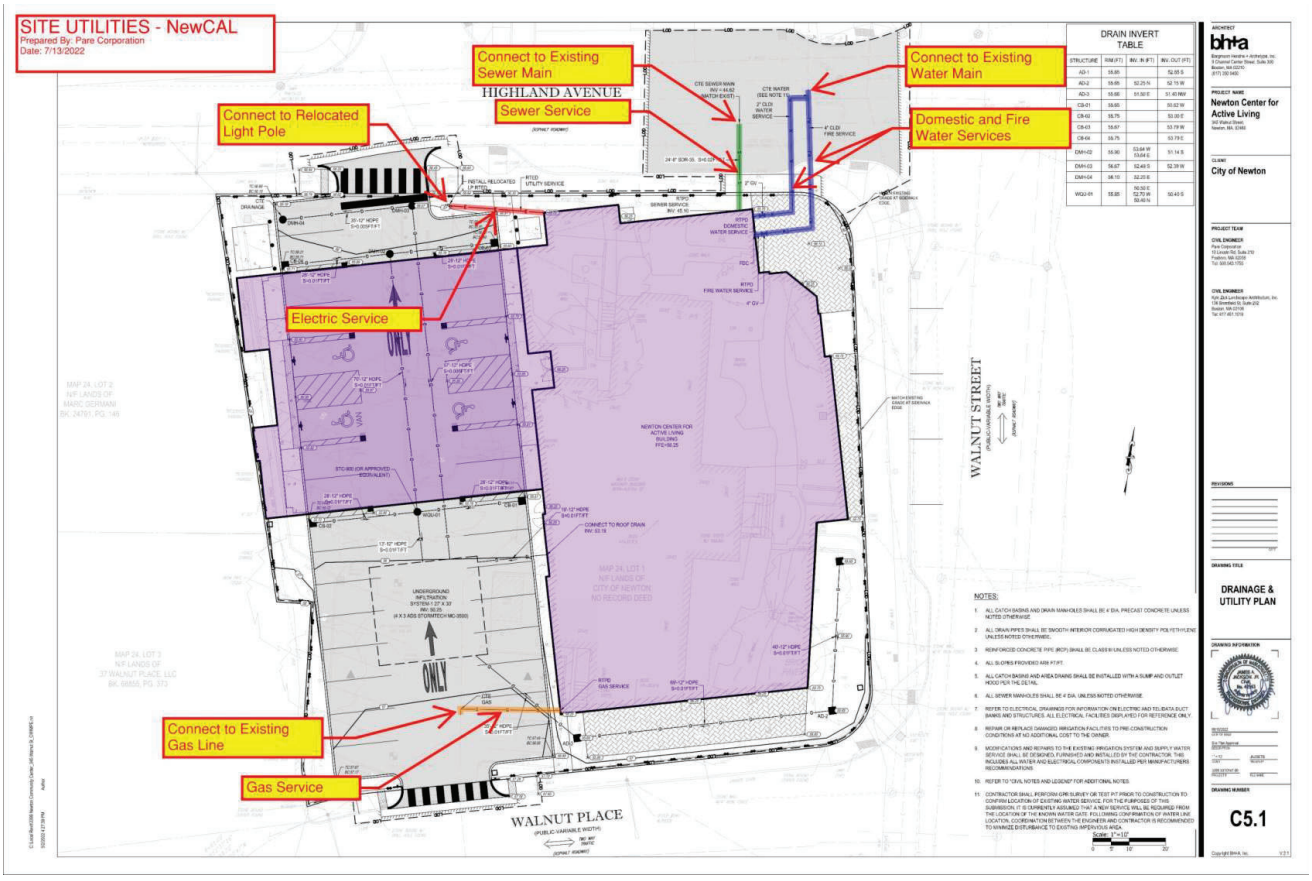


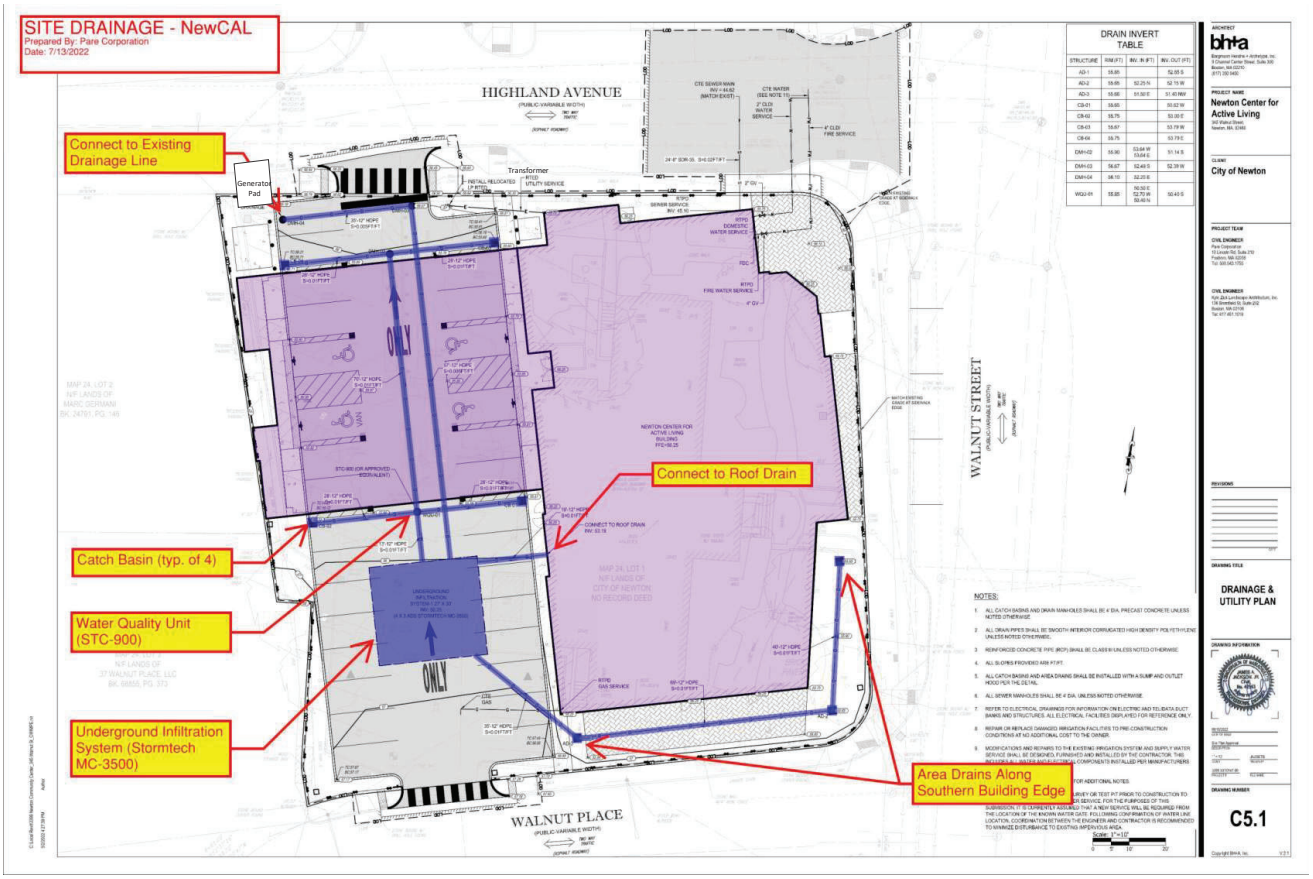
EXISTING GRANITE BOLLARD/EXISTING GRANITE CURB/
EXISTING FENCE

LANDSCAPEFORMS | WELLSPRING

LANDSCAPEFORMS | CIPMAN W/
31" DIA. STANDING TABLE

Civil Engineering
Site Plan Approval Submission

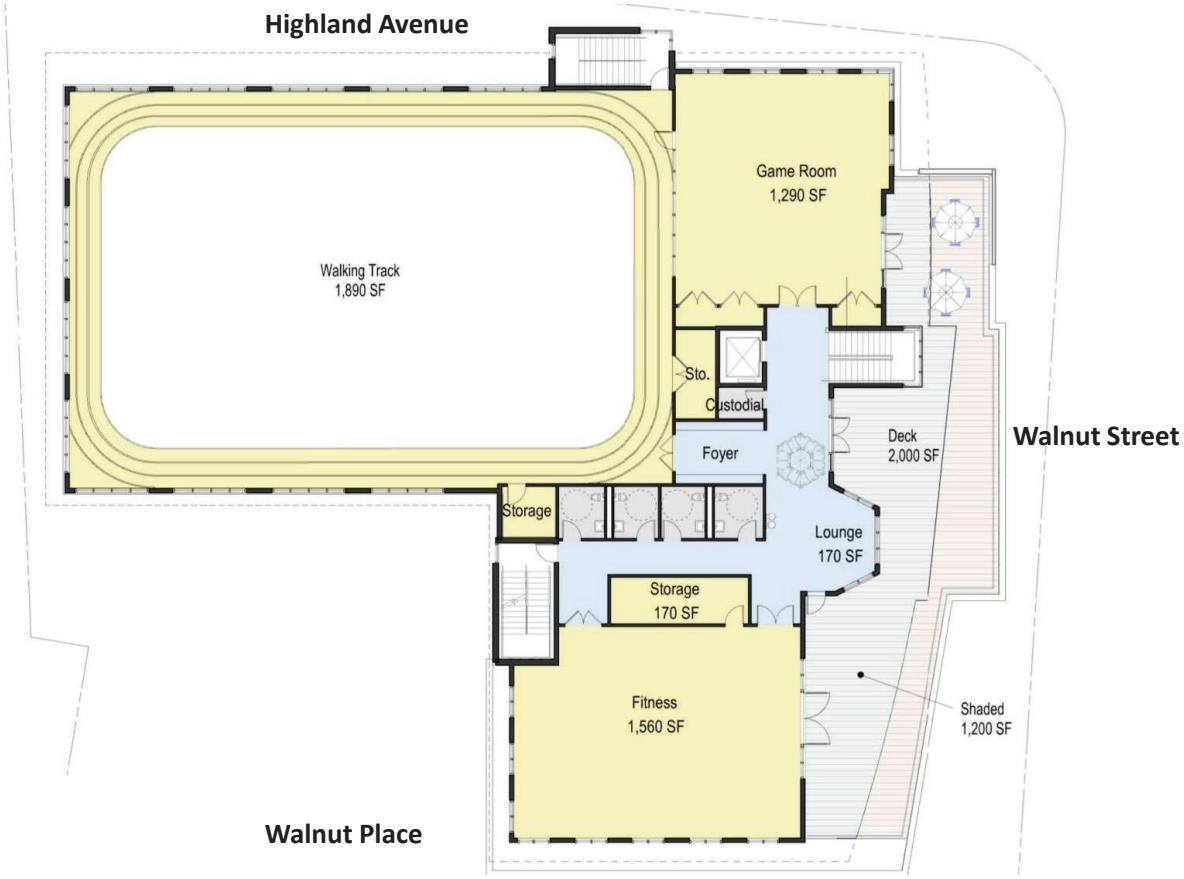




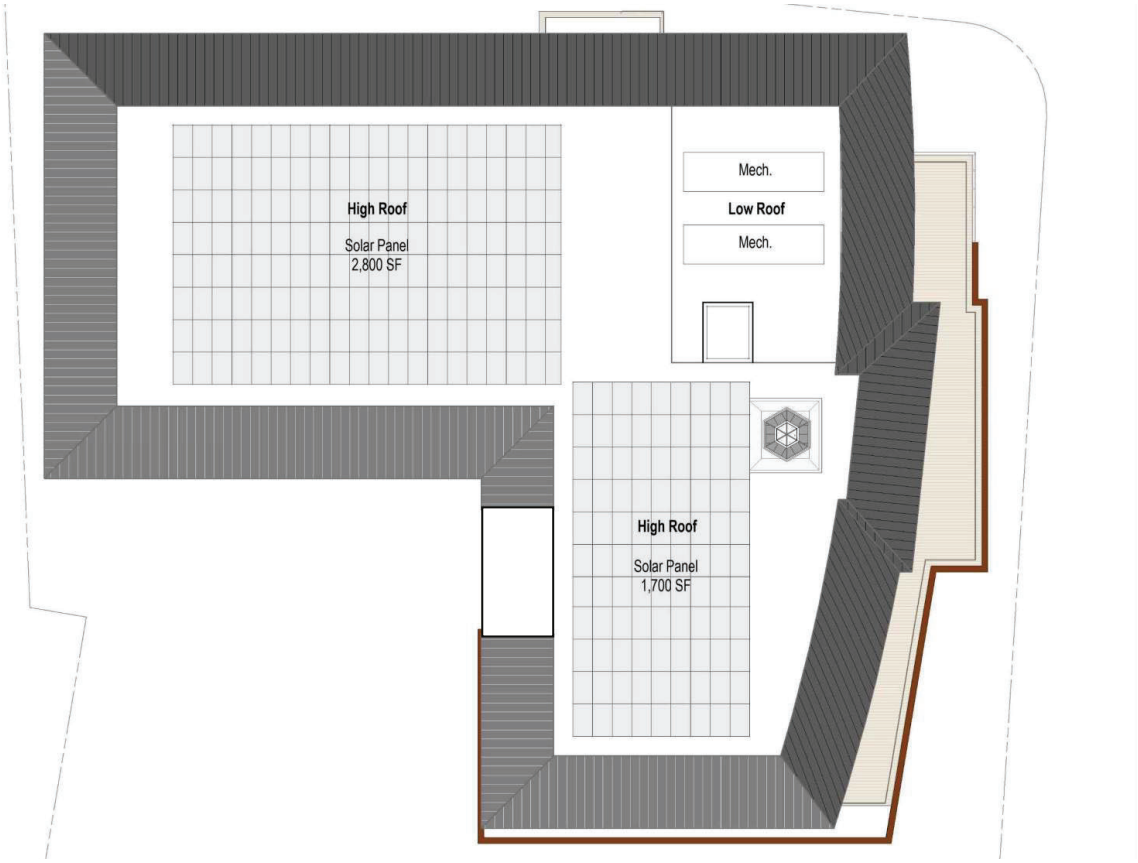
Building Plans and Elevations

First Floor

Second Floor



Third Floor



Roof Plan

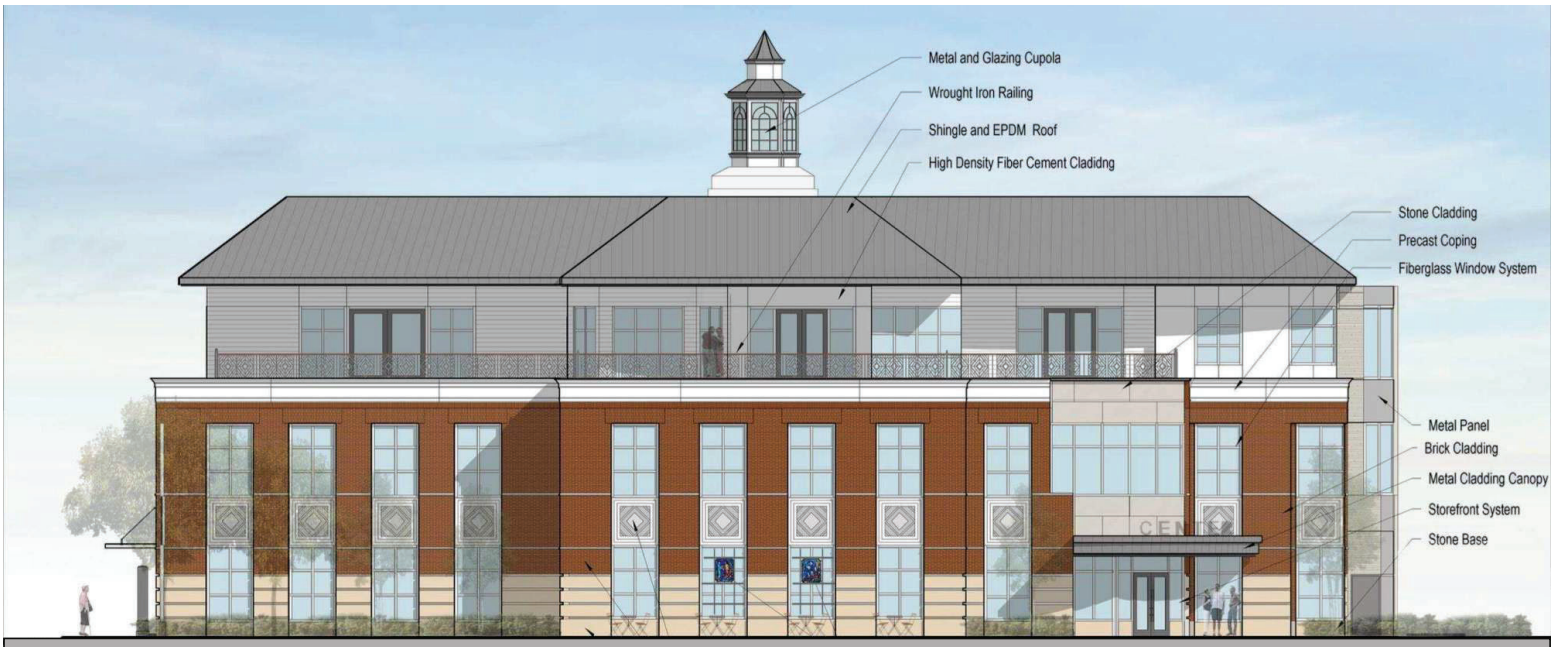
Building Street Perspectives

Front Entrance – Corner of Highland and Walnut St.

Walnut Street and Highland Avenue

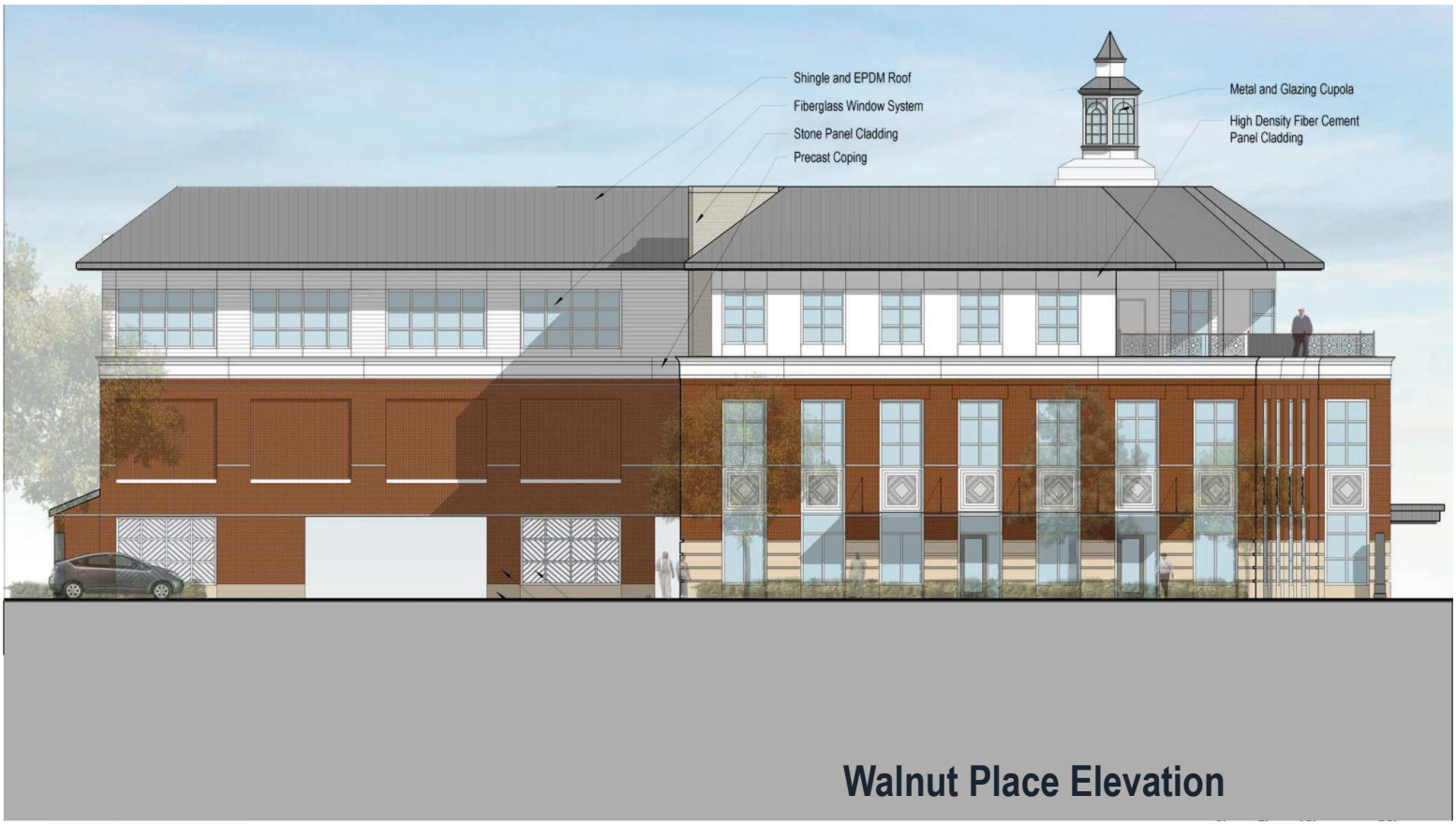
Walnut Street and Walnut Place

Walnut Place



Walnut Street Elevation

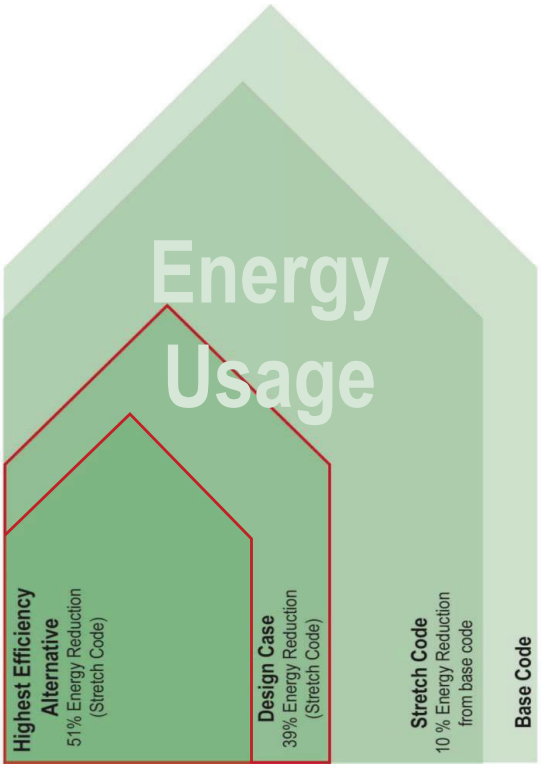
Highland Avenue Elevation



Walnut Place Elevation

West Elevation

Energy Model Analysis



Overall Energy + Green House Gas Comparison to Code

COMcheck Guidance

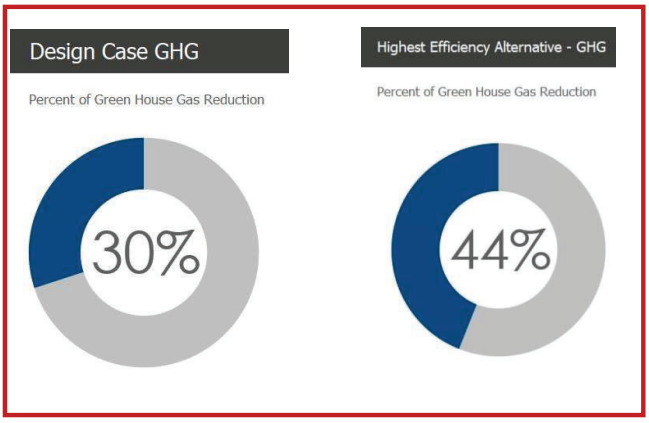
ENVELOPE BACKSTOP COMPLIANCE	
A+B+C+D+E	-170
Pass	

C406.8 ENHANCED ENVELOPE COMPLIANCE	
A+B+C+D+E	-145
Pass C402.1.5	

DOER Guidance

ENVELOPE BACKSTOP COMPLIANCE	
A+B+C+D+E	-359
Pass	

ENVELOPE BACKSTOP COMPLIANCE	
A+B+C+D+E	-305
Pass	



Energy Usage Intensity Comparison

Existing Senior Center
11,000 SF

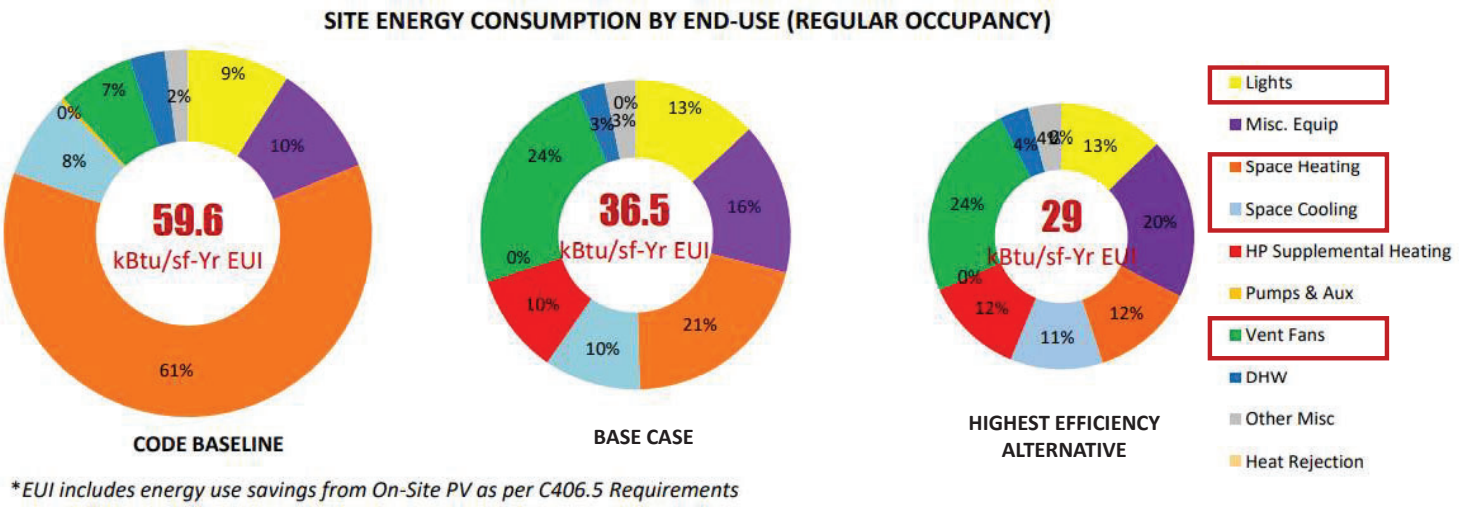
Stretch Code
32,000 SF

Proposed Design

Base Case
32,000 SF

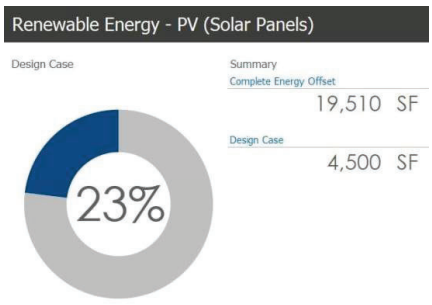
Highest Efficiency Alternative
32,000 SF

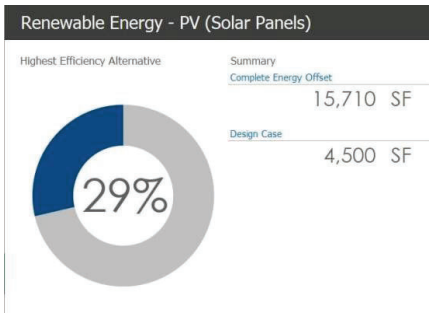
Energy Usage Intensity



*EUI includes energy use savings from On-Site PV as per C406.5 Requirements

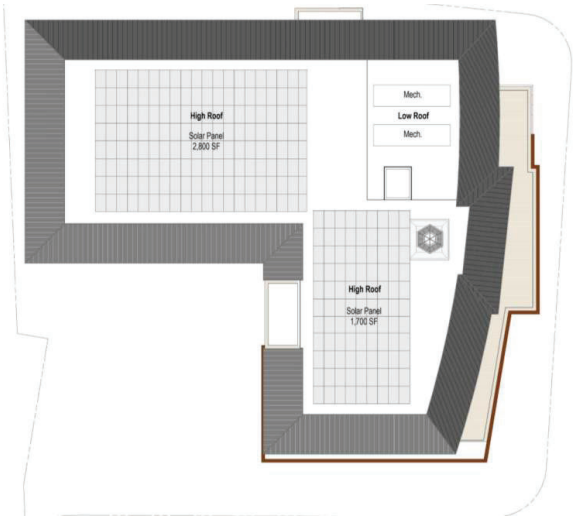
Renewable Energy – Solar Panel





PV Requirement to Achieve Zero Net Site Energy for Scenario 1								
Description	Annual Energy Use			Annual Energy Production				
	EUI (kBTU/sf/yr)	SF	kWh/yr	kWh req for NZE	kWh/kW (PV Watts)	pkW req for NZE	SF Roof Req	*Install Cost
Design Case	38.5	31,805	358,878	358,878	1,200	299.1	19,510	$ 897,196
NZE Alternative	31.0	31,805	288,967	288,967	1,200	240.8	15,710	$ 722,417

*Installed Cost is based on $3/pWatt PV capacity and does not account for any solar incentives.

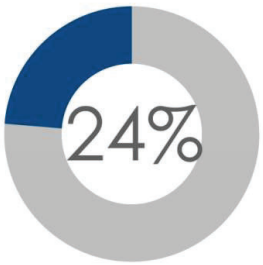


Proposed Design

Glazing to Wall Analysis

Total Building

Percent of Glazing to Wall Ratio



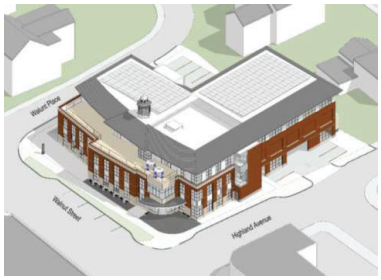
Summary

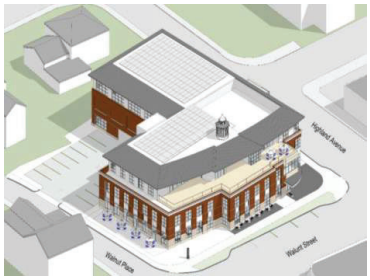
TOTAL WALL

24,123 SF

TOTAL GLAZING

5,722 SF





Glazing to Wall Summary

Wall/Surface	Glazing and curtainwall	
	1,326 sf	North
	1,388 sf	South
	2,061 sf	East
	947 sf	West
18,401 sf	5,722 sf	

24,123 sf	**23.7%**	Total Wall + Glazing

11,800 sf	Roof
560 lf	Foundation wall perimeter
2,240 sf	Under slab wall area

Life Cycle Assessment
Embodied Carbon Analysis

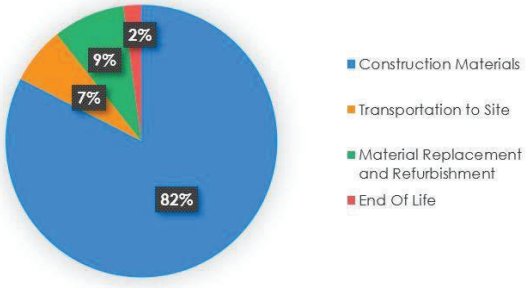
Life Cycle Assessment

Whole-building Life Cycle Assessment, ISO 14040 & ISO 14044 (TRACI 2.1.) Download Results Summary

	Result category	Global warming kg CO_2e	Ozone Depletion kg CFC11e	Acidification kg SO_2e	Eutrophication kg Ne	Formation of tropospheric ozone kg O3e	Depletion of nonrenewable energy MJ	Biogenic carbon storage kg CO_2e bio	
A1-A3	Construction Materials	1,165,340.18	0.02	4,908.15	121,299.95	516,949.82	11,940,906.45	23,842.19	Details
A4	Transportation to site	95,651.35	0.02	180.19	66.91	2,876.04	1,522,879.26		Details
B3	Repair	0	0	0	0	0	0		Details
B4-B5	Material replacement and refurbishment	120,650.33	0	920.92	143.07	11,373.4	294,506.4		Details
C1-C4	End of life	30,191.85	0	154.72	27.53	1,485.37	380,339.82		Details
	Total	**1,411,833.71**	**0.05**	**6,163.99**	**121,537.46**	**532,684.63**	**14,138,631.92**	**23,842.19**	
	Results per denominator								
	Gross Internal Floor Area (ASHRAE) 32000.0 sq ft	44.12	0	0.19	3.8	16.65	441.83	0.75	

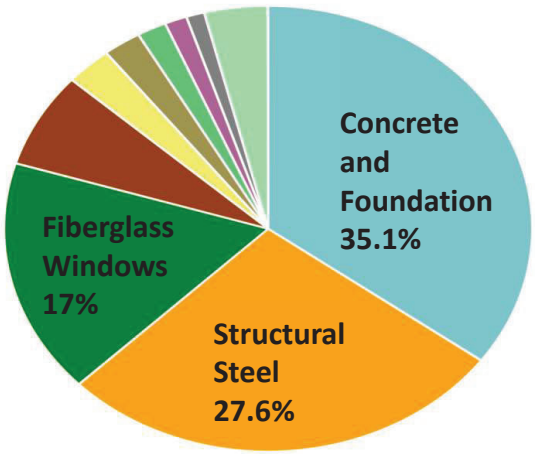
Please note. The following LCA or EPD standards are all fully compliant with the requirements of ISO 14044: ISO 14025, ISO 21930, EN15804. Assessment period fixed to 60 years.

Embodied Carbon Breakdown

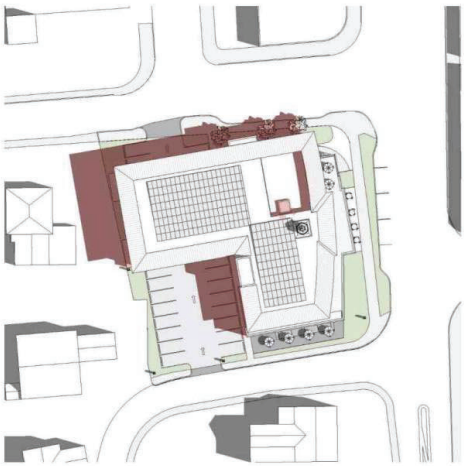


Construction Carbon Breakdown

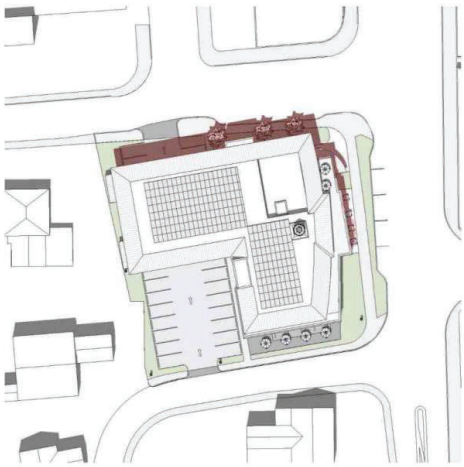
- Ready-mix, foundations - 35.1%
- PVC windows - 17.0%
- Rebar - 2.8%
- Bricks - 1.8%
- Natural stone - 1.1%
- Structural steel - 27.6%
- Other steel/iron - 6.9%
- Fibre cement - 2.4%
- Timber - 1.4%
- Other resource types - 3.9%



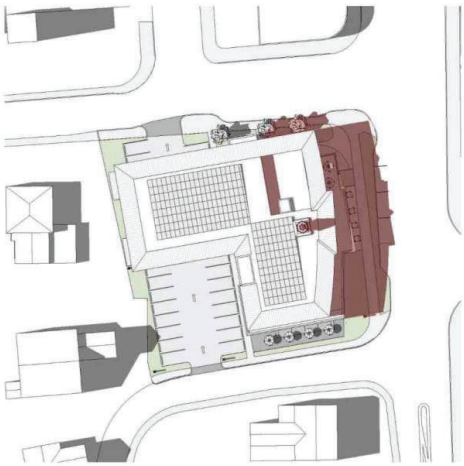
Shadow Studies



June 21st - 9am

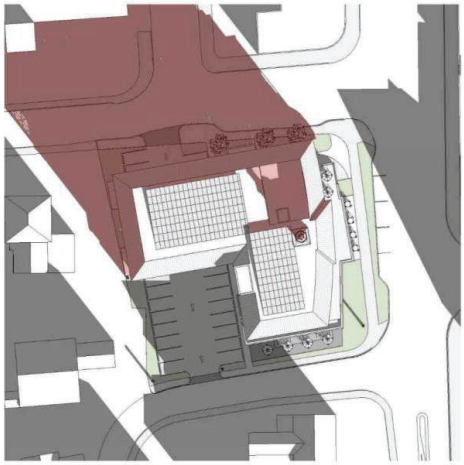


June 21st - 12pm

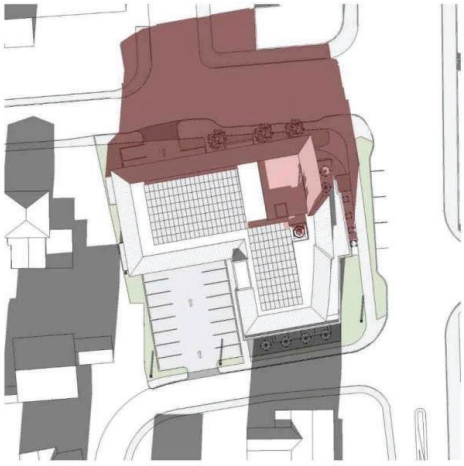


June 21st - 3pm

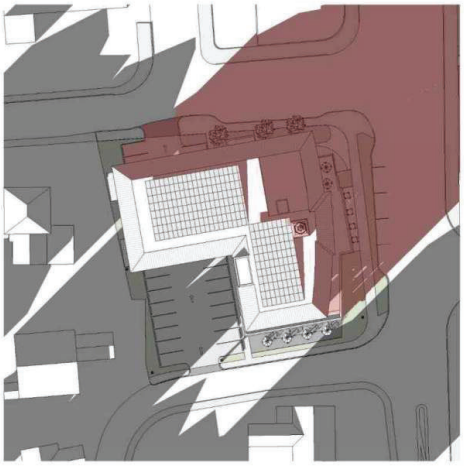
Newton Center for Active Living
Site Plan - Shadow Study-Summer Solstice
City of Newton



December 21st - 9am

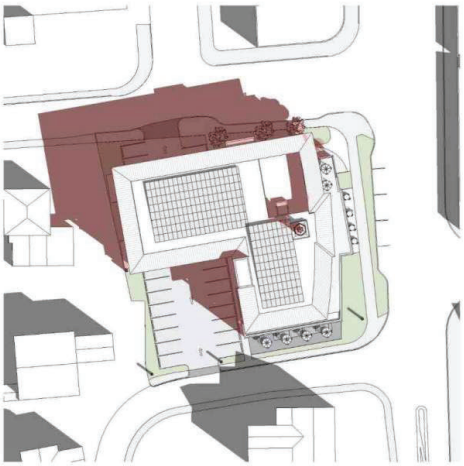


December 21st - 12pm

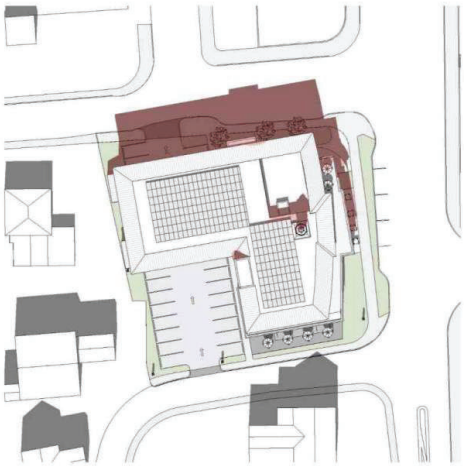


December 21st - 3pm

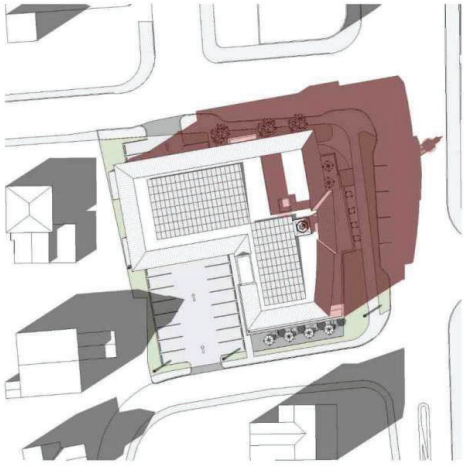
Newton Center for Active Living
Site Plan - Shadow Study-Winter Solstice
City of Newton



March 20th - 9am



March 20th - 12pm

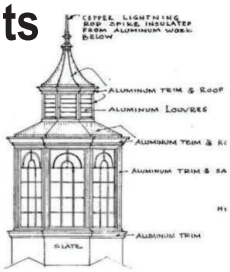


March 20th - 3pm

Newton Center for Active Living
Site Plan - Shadow Study- Spring Equinox
City of Newton

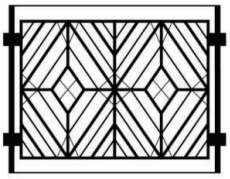
Building Materials and Historical Element

Design Elements

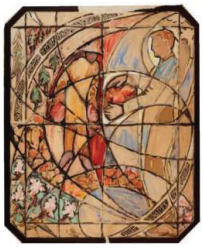


Original 1938
Cupola Design

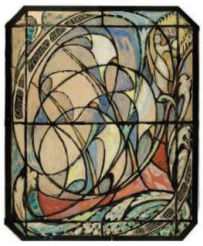
Decorative Panels



Decorative Railing



Mending Wall
-Robert Frost



There is no frigate like a book
-Emily Dickinson

Connick Studio
Stained Glass

Materials


Brick
Shingle Roof
Decorative Panel
Cladding
CENTER
Connick Studio Stained Glass Panels
Wrought Iron Railing
Limestone


Thank You
CENTER