CARLETON HART ARCHITECTURE

NZEL PRESENTATION

BY SUSANA CARRIZAL

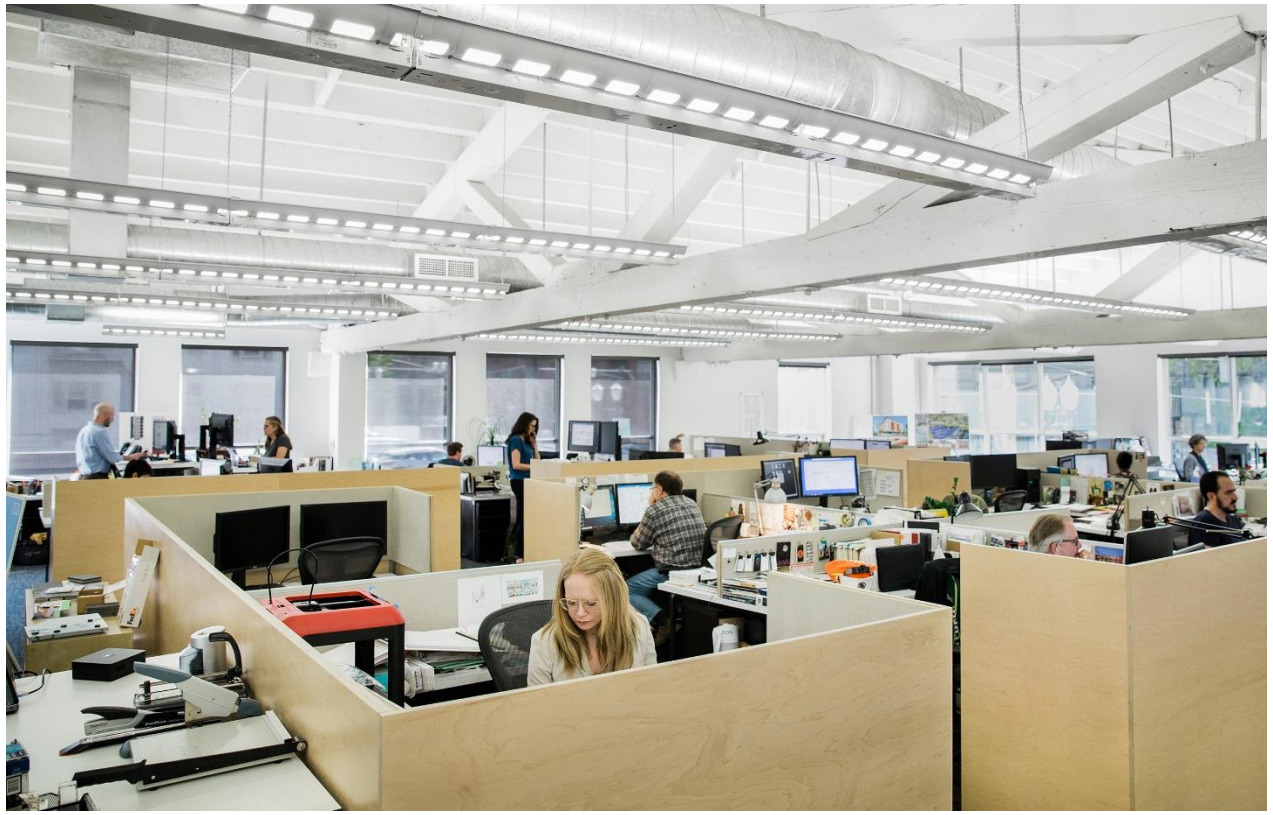
SUSANA CARRIZAL

INTRODUCTION

- Background
  - 3rd year PSU Architecture Student
- NET Zero Emerging Leaders Program
- My experience at Carleton Hart Architecture- 2021
  - Online interning at CHA
  - Discovery
  - Learning
  - Problem Solving
  - Implementing

CARLETON HART ARCHITECTURE

INTRODUCTION



Founded in 1994 with a special focus on work that **supports community building**.

Specialize in affordable housing – serving vulnerable and marginalized communities, client – centric, mission driven.

B Corp – A third party certification of social and environmental performance of for-profit companies, that practice a high level of transparency and accountability.

Just - is a transparency platform for organizations to disclose their operations, including how they treat their employees and where they make financial and community investments.

Full-service architecture and interiors – with a special focus on materials health with and equitable design approach.

LEGEND

- LEED CERTIFICATION
- GREEN COMMUNITIES
- EARTH ADVANTAGE

CLARA VISTA TOWNHOMES (SILVER)
Portland, Oregon
65,352 SF
44 Units

IRIS GLEN
Klamath Falls, Oregon
33,065 SF
37 Units

BRIDGE MEADOWS (GOLD)
Portland, Oregon
48,612 SF
36 Units

HOOD RIVER CROSSING
Hood River, Oregon
39,859 SF
40 Units

TIGARD KNOLL
Tigard, Oregon
39,859 SF
40 Units

CHAUCER COURT APTS
(Rehabilitation Project)
Portland, Oregon
61,000 SF
84 Units

MIRACLES CLUB (GOLD)
Portland, Oregon
48,860 SF
40 Units

THE MAGNOLIA (SILVER)
Portland, Oregon
46,382 SF
49 Units

BARCELONA
Location: Beaverton, Oregon
Size: 40,025 SF
Units: 47

LASCALA
Location: Beaverton, Oregon
Size: 47,015 SF
Units: 44

GILMAN COURT (GOLD)
Portland, Oregon
55,800 SF
60 Units

ROSEWOOD PLAZA
Location: Gresham, Oregon
Size: 54,710 SF

SUSTAINABILITY AT WORK CERTIFICATION

HILL PARK
Portland, Oregon
30,209 SF
39 Units

BRIDGE MEADOWS (PLATINUM)
Beaverton, Oregon
49,100 SF
41 Units

NAYA GENERATIONS (GOLD)
Portland, Oregon
30,209 SF
40 Units

BEATRICE MORROW (GOLD)
Portland, Oregon
32,394 SF
80 Units

NEW MEADOWS (GOLD)
Portland, Oregon
14,533 SF
15 Units

COLONIA UNIDAD (GOLD)
Woodburn, Oregon
120,623 SF
44 Units

NESIKA ILLAHEE (PLATINUM)
Portland, Oregon
51,605 SF
59 Units

WOODY GUTHRIE PLACE (PLATINUM)
Portland, Oregon
29,031 SF
64 Units

SUSTAINABILITY AT WORK CERTIFICATION

RED ROCK CREEK COMMONS (PLATINUM)
Tigard, Oregon
38,333 SF
48 Units

CEDAR GROVE (PLATINUM)
Beaverton, Oregon
33,208 SF
44 Units

MAMOOK TOKATEE
Pursuing PLATINUM
Portland, Oregon
54,182 SF
50 Units

WEBSTER ROAD
Pursuing GOLD
Gladstone, Oregon
95,830 SF
48 Units

SUSAN EMMONS
Pursuing GOLD
Portland, Oregon
10,000 SF + 9,992 SF
98 + 48 Units

HAYU TILIXAM
Pursuing PLATINUM
Portland, Oregon
54,182 SF
50 Units

THE JOYCE HOTEL
Pursuing SILVER
Portland, Oregon
5,825 SF
66 Units

BEHAVIORAL HEALTH RESOURCE CENTER
Pursuing GOLD
Portland, Oregon
12,005 SF

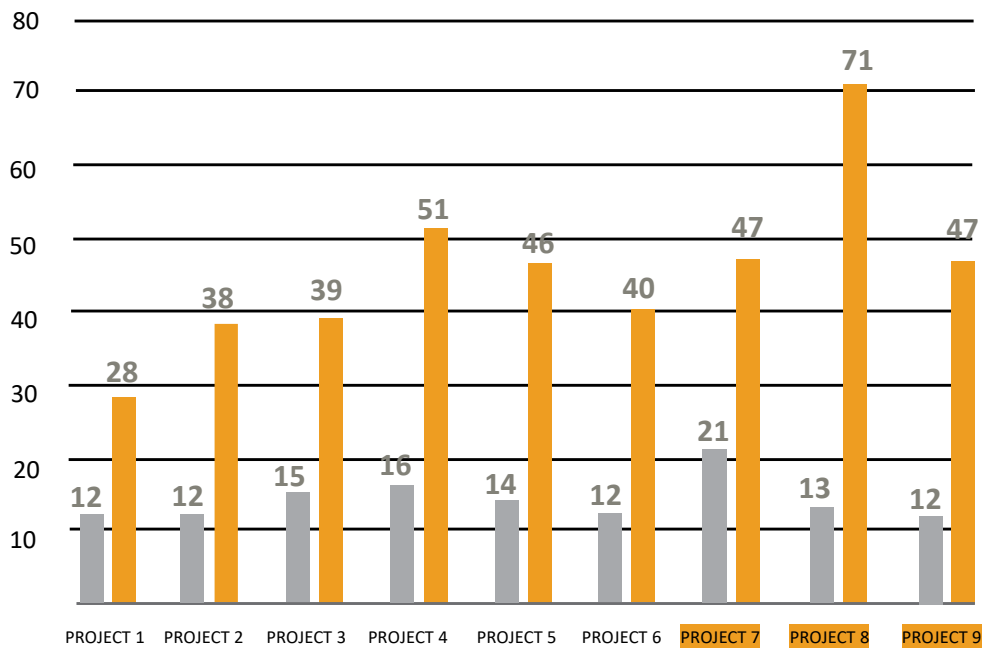
COLUMBIA BLVD WASTEWATER TREATMENT PLANT
Pursuing GOLD
Portland, Oregon
10,605 SF

2006 | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 | 2020

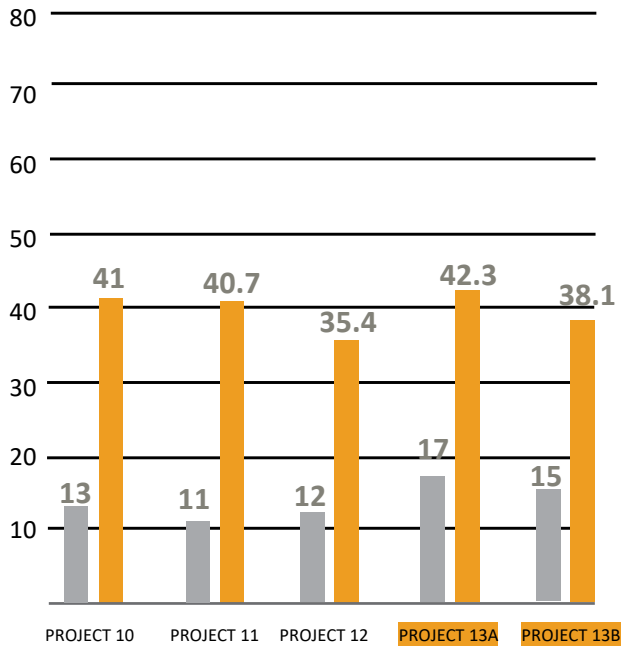
2030 CHALLENGE/ ALL PROJECTS

REPORTING YEAR 2020

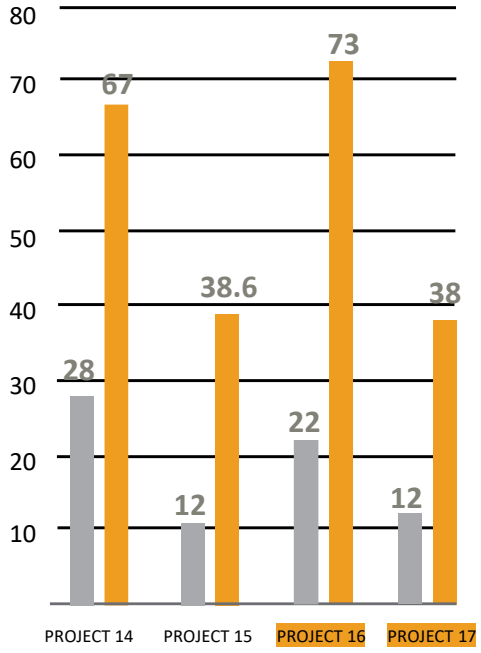
RESIDENTIAL-MULTI-FAMILY



RESIDENTIAL-MID-RISE/HIGH-RISE



LODGING GENERAL/OTHER



TARGET EUI

pEUI

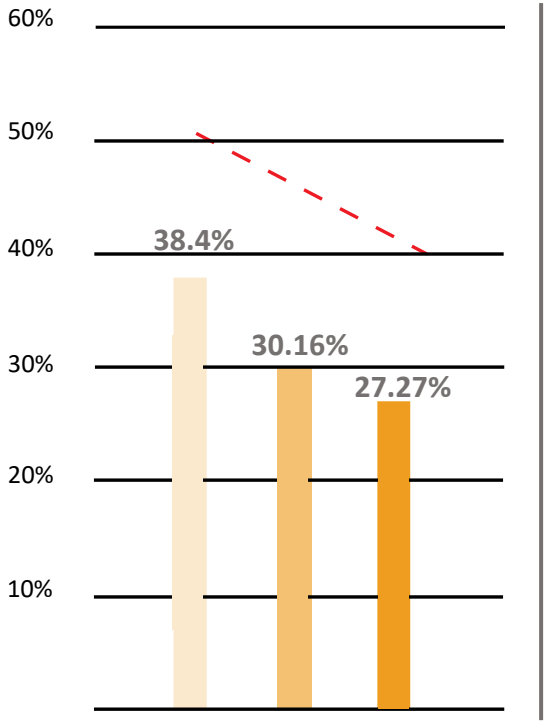
ARE WE GETTING BETTER OR WORSE?

2018-2020 DATA

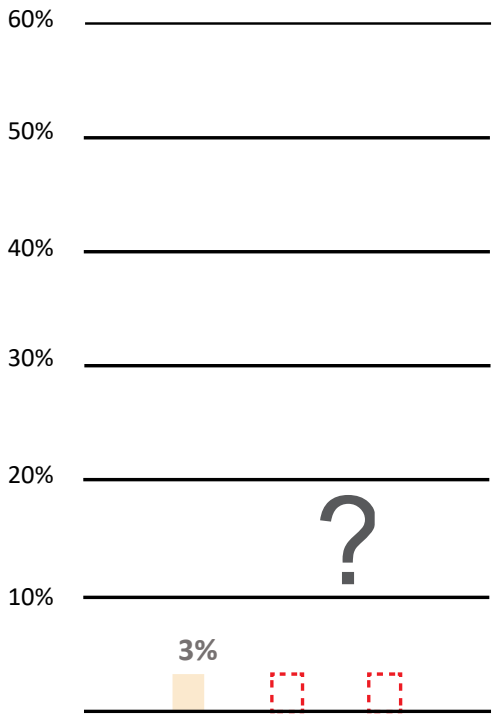
2018 2019 2020

# of projects reported

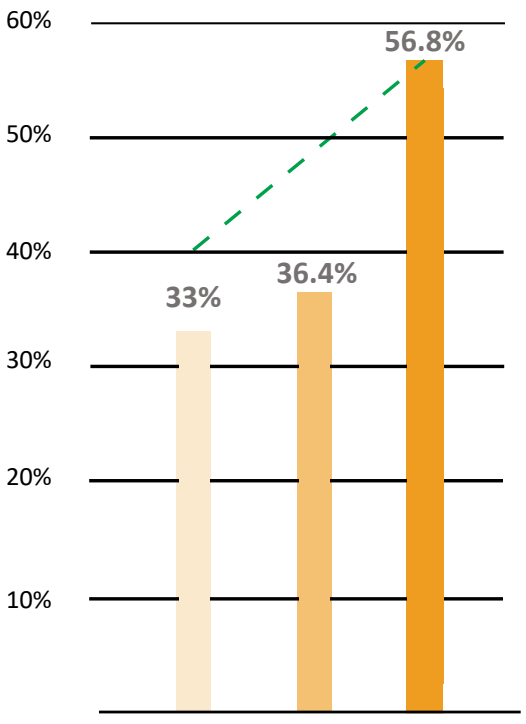
2018 – 58 projects
2019 – 22 projects
2020 – 17 projects



AVERAGE EUI REDUCTION %



% OF PROJECTS > 60% REDUCTION



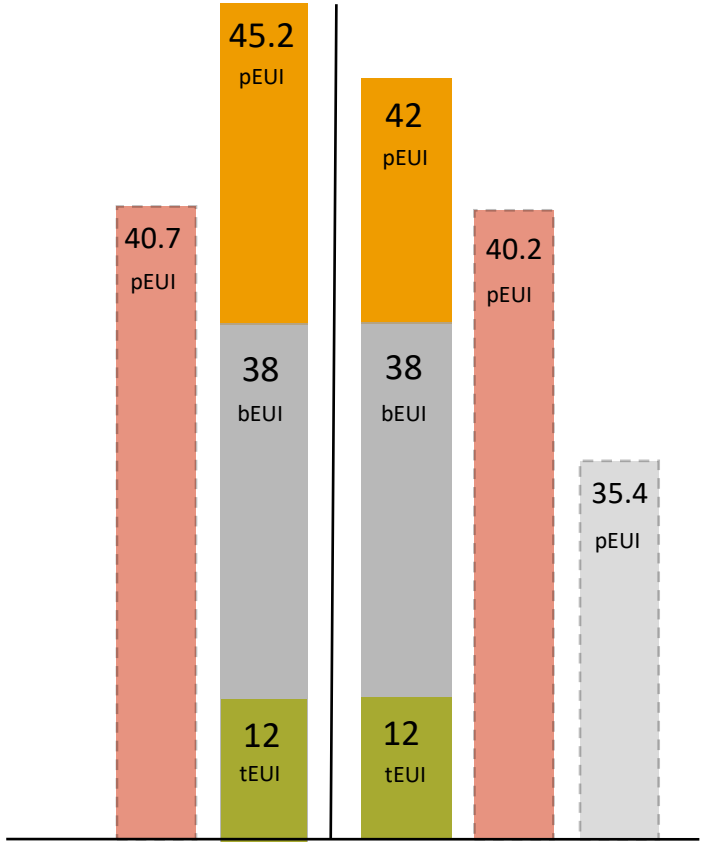
ENERGY MODELED: % OF TOTAL GSF

CASE STUDY

PROJECT A

4 STORY MULTI-FAMILY

39,430 SQFT
NUMBER OF UNITS: 44 **CONSTRUCTION TYPE:** V-A
EARTH ADVANTAGE PLATINUM



PROJECT B

4 STORY MULTI-FAMILY

38,333 SQFT
NUMBER OF UNITS: 48
CONSTRUCTION TYPE: V-A
EARTH ADVANTAGE PLATINUM

TARGET EUI
BASELINE
PREDICTED EUI
AS BUILT EUI (PRE-RENEWABLES)
AS BUILT EUI (POST-RENEWABLES)

CASE STUDY

PROJECT A

Exterior Walls:

R-23, blown-in batt (5 1/2 inches stud bays). R-6, continuous rock wool exterior insulation.

Below Grade Wall:

1. R-10, extruded polystyrene foam board for full height on interior face of wall.
2. R-15, blown-in-batt (3 ½ inches stud bays)

Roof: R-30 (Rigid Insulation)

Windows: Innotech Windows + Doors; Defender 76 DS.

PROJECT B

Exterior Walls:

R-6, exterior continuous mineral wool insulationR-23, blown-in blanket (5 1/2 inches stud bays).

Wood Floors: Overhangs

1. R-38 minimum, Blown-in Batt

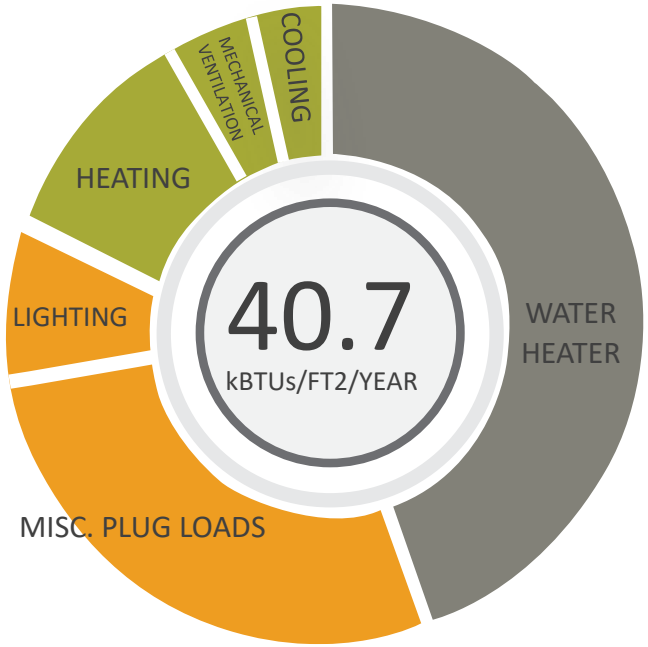
Below Grade Wall:

1. R-10, extruded polystyrene foam board for full height on interior face of wall.
2. R-15, blown-in-batt (3 ½ inches stud bays)

Roof: R-30 (Rigid Insulation)

Windows: Innotech Windows + Doors; Defender 76 TS.

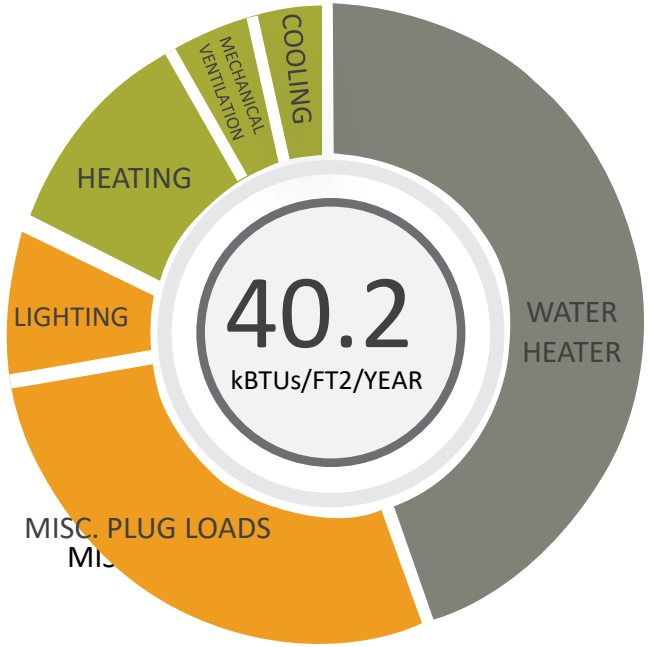
PROJECT A



AS BUILT PERFORMANCE
*SOURCE FROM EARTH ADVANTAGE

20.33% savings over permitted code pre-renewables

PROJECT B



AS BUILT PERFORMANCE
*SOURCE FROM EARTH ADVANTAGE

21.56% savings over permitted code pre-renewables

PLUMBING
ELECTRICAL
MECHANICAL

WATER HEATING (PLUMBING)/MISC PLUG LOAD (ELECTRICAL)/ HEATING (MECHANICAL) **HAVE THE MOST IMPACT** ON A BUILDING'S ENERGY PERFORMANCE

ALTERNATIVES TO VINYL WINDOWS

WHY IS IT IMPORTANT?

RESEARCH

PVC

CREATES AND **RELEASES** ONE OF THE MOST **TOXIC CHEMICALS**

DIFFICULT TO RECYLCE – ENDS UP IN THE LANDFILL

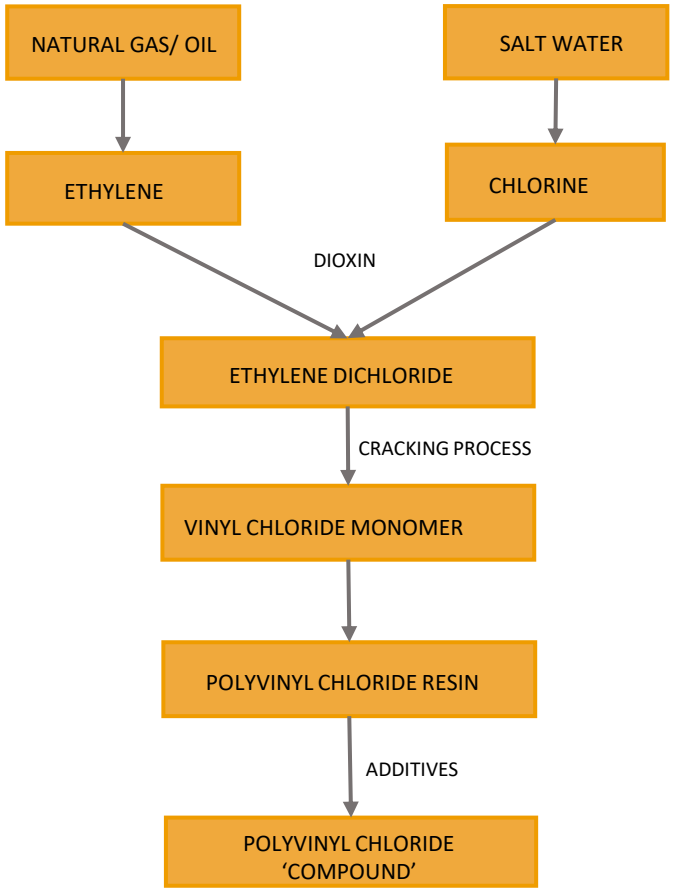
WHY DO WE AS ARCHITECTS NEED TO CARE ABOUT THIS?

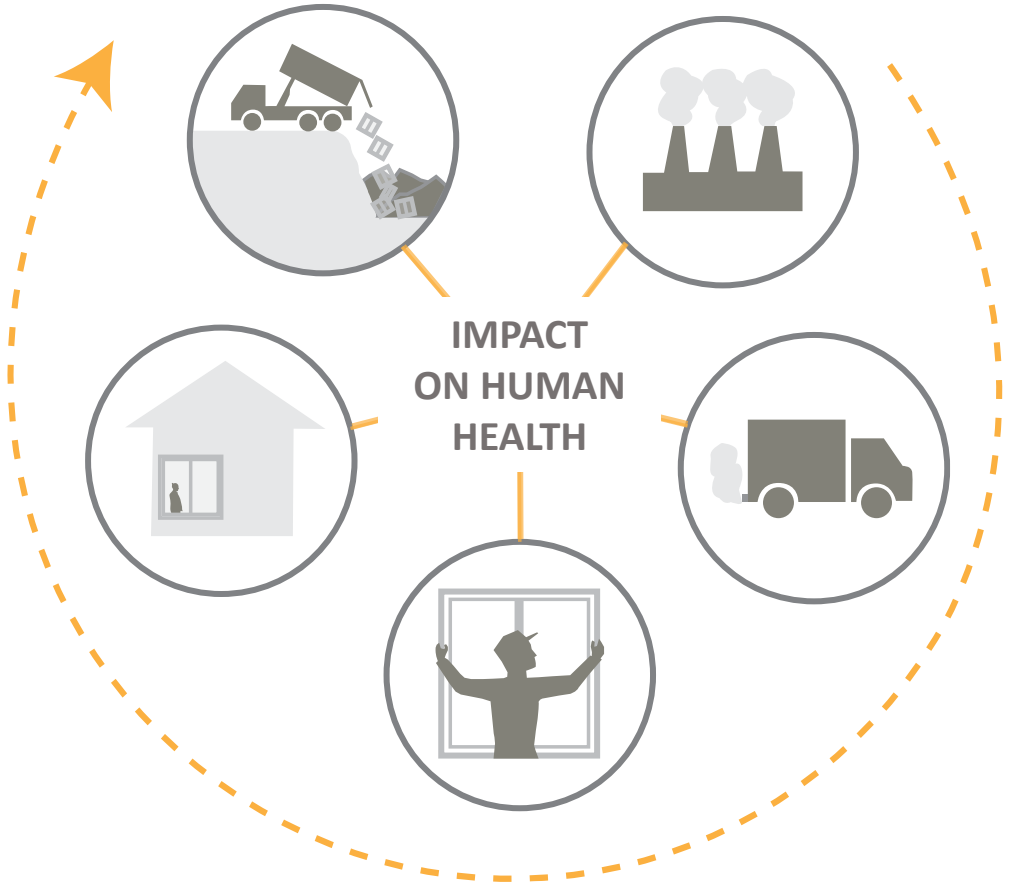
https://earthjustice.org/features/toxic-catastrophes-texas-national-chemical-disaster-rule

CHEMICALS IMPACTING HUMAN HEALTH

RESEARCH

CHEMICAL PROCESS:





LIFE CYCLE OF VINYL WINDOWS

WHAT ARE YOUR CHOICES?

RESEARCH

VINYL

ALUMINUM

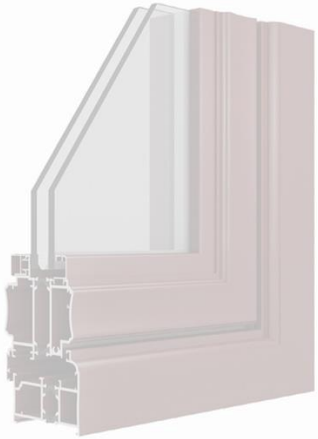
FIBERGLASS

WOOD W/
ALUMINUM CLAD

WHAT ARE YOUR CHOICES?

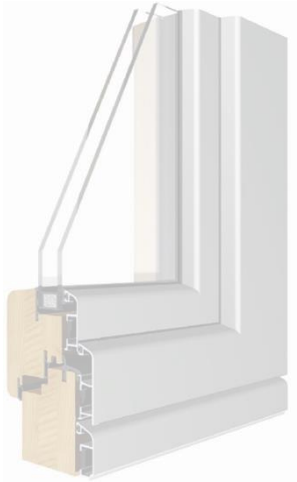
RESEARCH

VINYL



ALUMINUM

FIBERGLASS



WOOD W/
ALUMINUM CLAD

VINYL WINDOWS VS FIBERGLASS

RESEARCH

SAMPLE PROJECT

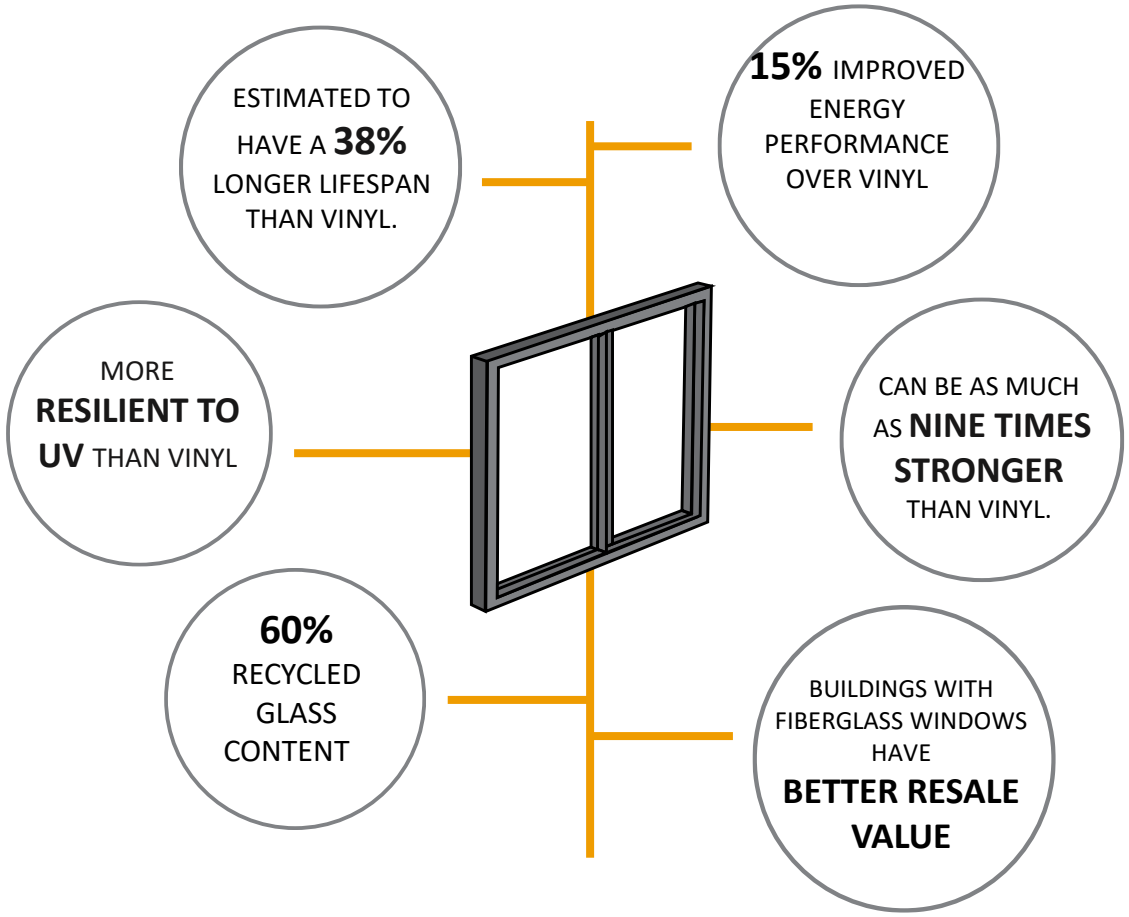
TOTAL NUMBER OF VINYL WINDOWS : **167**

ESTIMATED COST OF VINYL WINDOWS:
$91,850

ESTIMATED COST FOR FIBERGLASS WINDOWS:
$133,600

APROX. 40% PRICE INCREASE

BENEFITS OF FIBERGLASS



WINDOW CHART

RESEARCH

TYPE	HARM LVL: EMBODIED CARBON	PERFORMANCE: U- VALUE	PERFORMANCE: DURABILITY & ROT	PERFORMANCE: MAINTENANCE	PERFORMANCE: STRENGTH	OTHER: CUSTOMIZATION OPTION	OTHER: COST
VINYL		0.6 – 0.5	★★	★★	★	★	$
ALUMINUM		1.0 – 2.2	★★★	★★★	★★	★★★	$$$
FIBERGLASS		0.4 – 0.6	★★★	★★★	★★★	★★★	$$$
WOOD W/ ALUMINUM CLAD		0.9 - 1.25	★½	★★	★★	★	$$$$

SOURCES

HTTPS://WWW-BUILDINGGREEN-COM.PROXY.LIB.PDX.EDU/FEATURE/CHOOSING-WINDOWS-LOOKING-THROUGH-OPTIONS

HTTPS://WWW.CASCADIAWINDOWS.COM/DATABASE/FILES/LIBRARY/CASCADIA_WHITE_PAPER_WHY_FIBERGLASS_2020_04(2).PDF

HTTPS://EARTHJUSTICE.ORG/FEATURES/TOXIC-CATASTROPHES-TEXAS-NATIONAL-CHEMICAL-DISASTER-RULE

HTTPS://WWW.ECOHOME.NET/GUIDES/2357/WINDOWS-DOORS/

HTTPS://WWW.ECOWATCH.COM/WHY-YOU-SHOULD-AVOID-PVC-PRODUCTS-1881927242.HTML

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HTTPS://WWW.GREENPEACE.ORG/USA/WP-CONTENT/UPLOADS/LEGACY/GLOBAL/USA/REPORT/2009/4/PVC-THE-POISON-PLASTIC.HTML

HTTPS://WWW.WEATHERSHIELD.COM/NEWS/WS-BLOG/WEATHER-SHIELD-BLOG/JANUARY-2014/ALUMINUM-VS-FIBERGLASS-WINDOWS

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SALAZAR, J. “21 - LIFE CYCLE ASSESSMENT (LCA) OF WINDOWS AND WINDOW MATERIALS.” *ECO-EFFICIENT CONSTRUCTION AND BUILDING MATERIALS*, ELSEVIER LTD, 2014, PP. 502–527.

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THANK YOU.