

# Embodied Carbon

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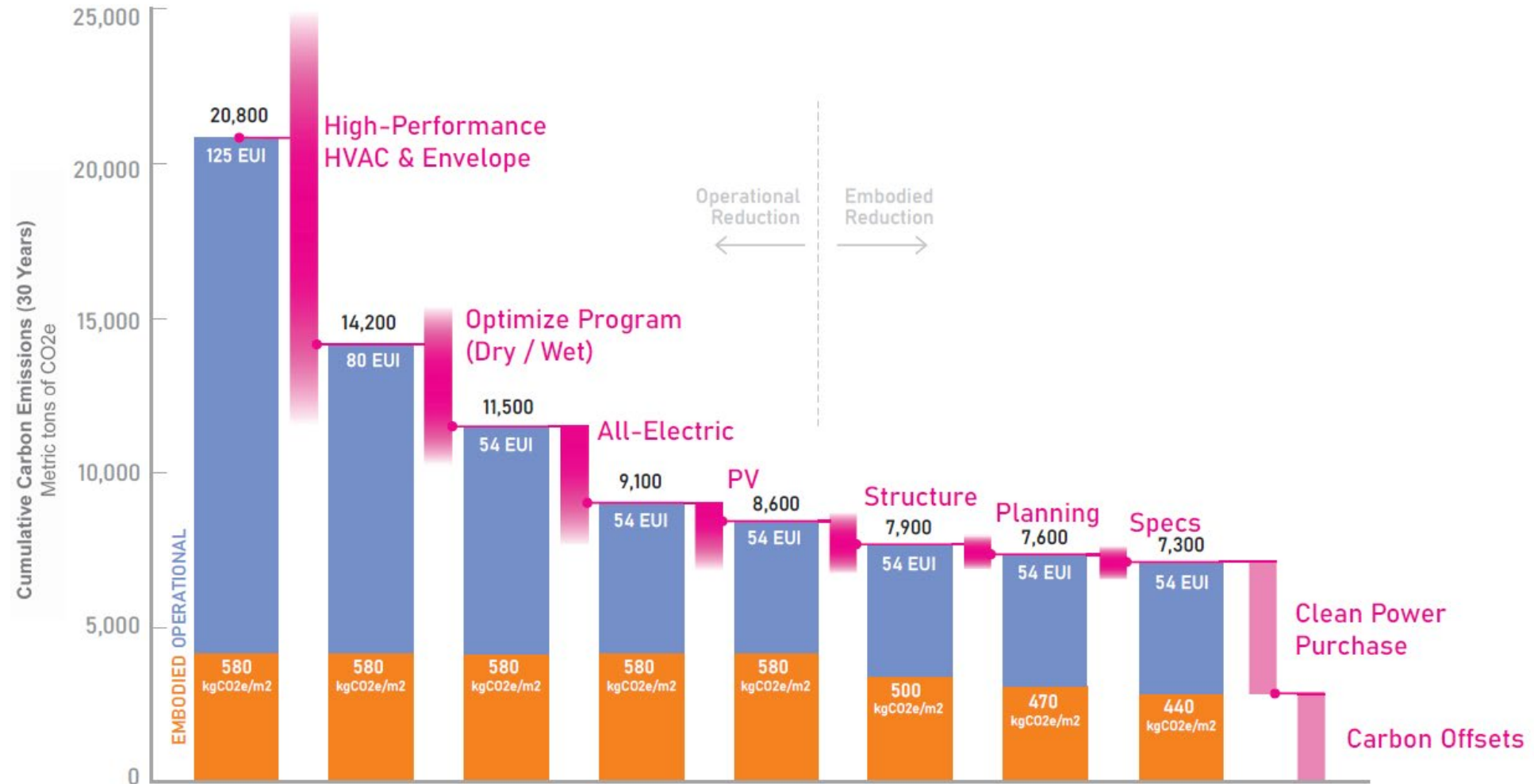


# Sustainable Engineering Laboratory (SEL) Embodied Carbon



# Embodied Carbon – SEL

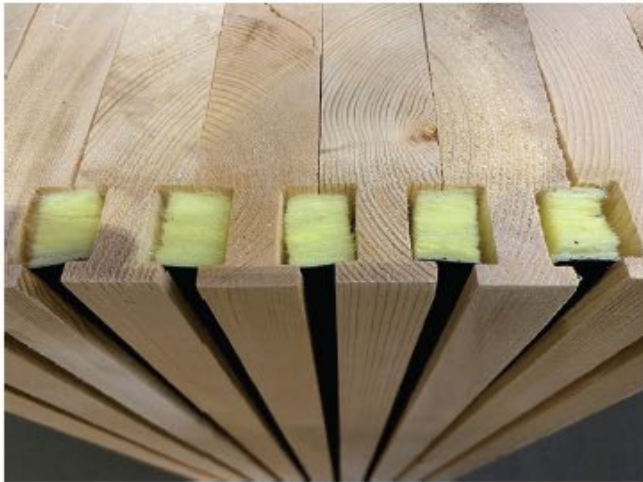
## UMASS SEL | Total Carbon – Pathway to Zero





# Embodied Carbon – SEL

UMASS SEL | [Structural System Selection](#)



DOWEL-LAMINATED TIMBER  
WITH INTEGRAL ACOUSTIC KERFS (NRC: 0.7)

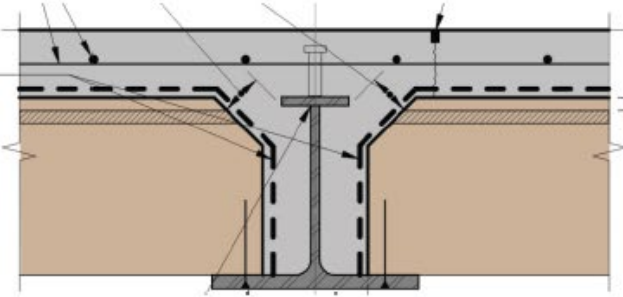


OPEN LAB LOFT / WORKSHOP WITH DLT STRUCTURE

# Embodied Carbon – SEL

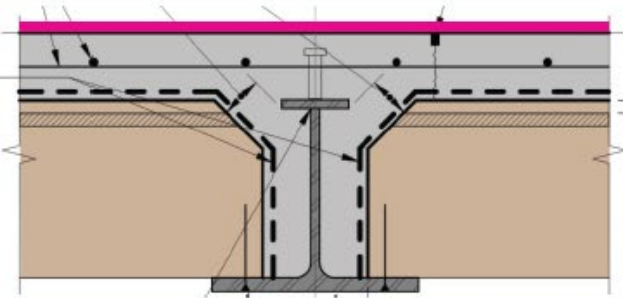
UMASS SEL | Enabling Higher SCMs

Polished Structural Slab



← Contractor resistant to finishing any slab >20% SCM

Polished Thinsset Concrete Topping Slab (Ardex)



← Added finish layer enabled 25%-40% SCM for slabs





# Embodied Carbon – SEL

UMASS SEL | Basement Elimination



# Embodied Carbon – SEL

UMASS SEL | Global Carbon Emissions of Concrete



Type:  
SCM

Replaces some cement  
with ground glass –  
comparable to fly ash



Type:  
Aggregate

Aggregate made of  
captured CO2



Type:  
Cement  
(OPC Alternative)

Cement made via  
electrolysis instead of  
blast furnace



Type:  
Cement  
(OPC Alternative)

Cement made via  
grinding of selective  
minerals in lieu of  
limestone



Type:  
Admixture

Captured CO2 injected  
into concrete mix,  
offsets small amount of  
cement



# Embodied Carbon - SEL



HONORS AND AWARDS

**SEL BUILDING DESIGN WINS GRAND PRIZE IN  
EMBODIED CARBON REDUCTION CHALLENGE**