Net Zero Emerging Leaders Presentation

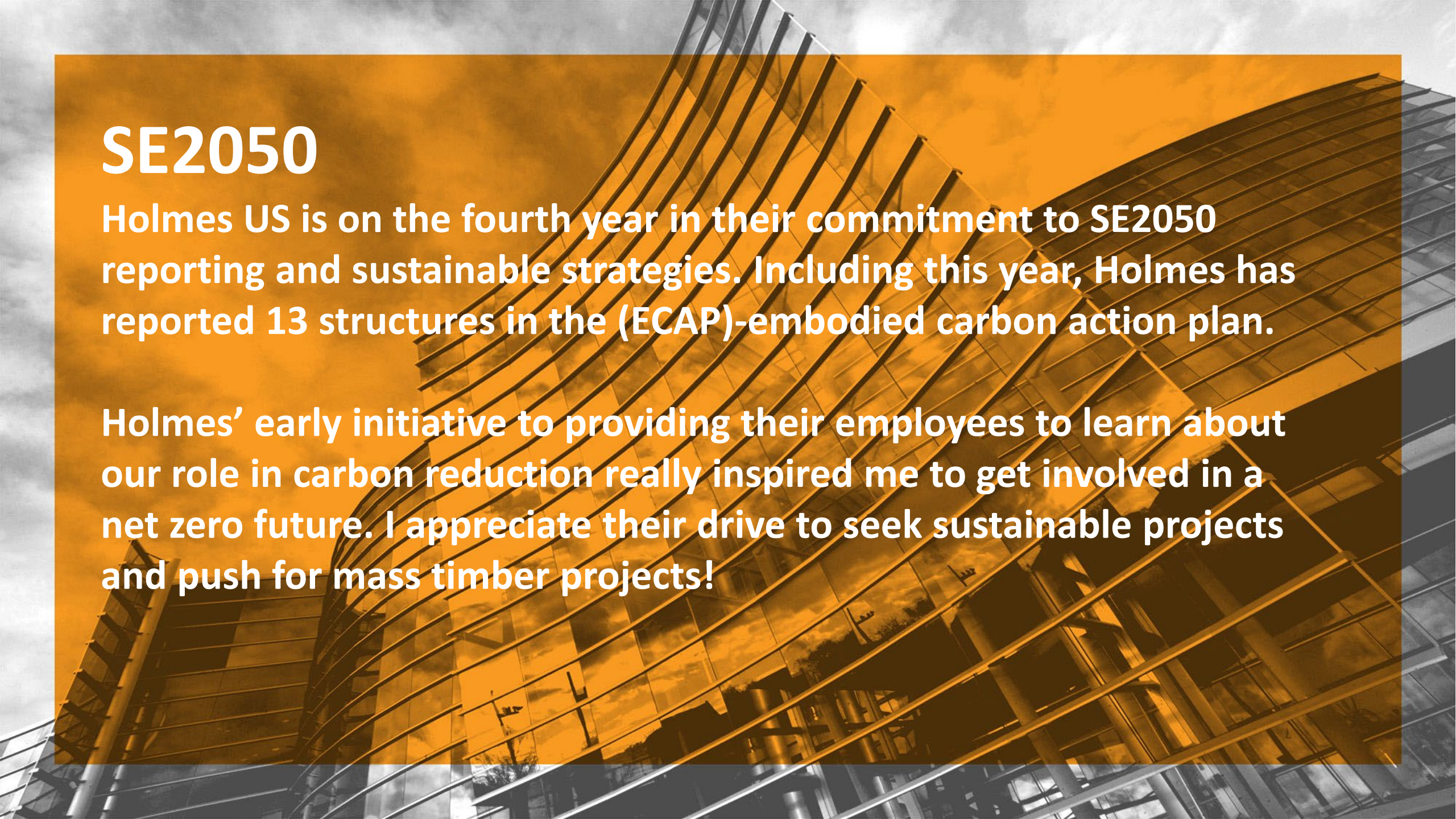
Holmes

Holmes US

Presented by HAYLE JONES

Hayle Jones

I am in my last quarter of undergrad at Cal Poly SLO, CA studying Architectural engineering. I interned with Holmes as a structural intern last year from June to December in Los Angeles. I am so fortunate to be entering a field where I can explore interests within structural engineering. Some of my passions include humanitarian engineering and cooking!



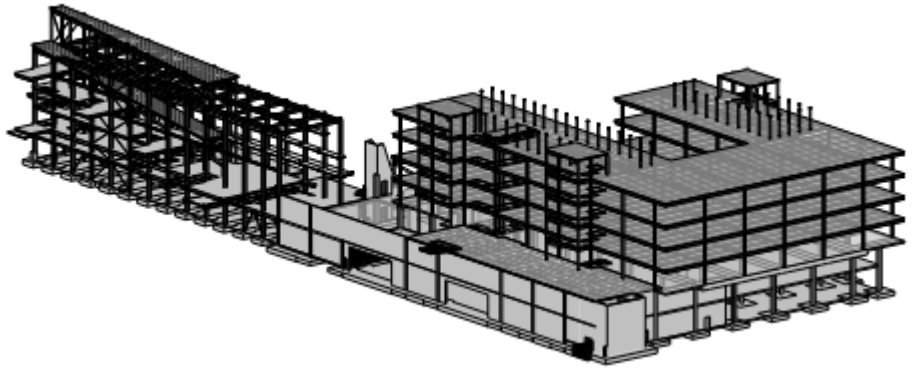
SE2050

Holmes US is on the fourth year in their commitment to SE2050 reporting and sustainable strategies. Including this year, Holmes has reported 13 structures in the (ECAP)-embodied carbon action plan.

Holmes' early initiative to providing their employees to learn about our role in carbon reduction really inspired me to get involved in a net zero future. I appreciate their drive to seek sustainable projects and push for mass timber projects!

Life Cycle Assessments

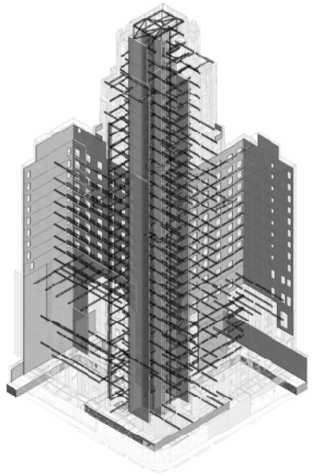
ocV!BE



Seattle Storm

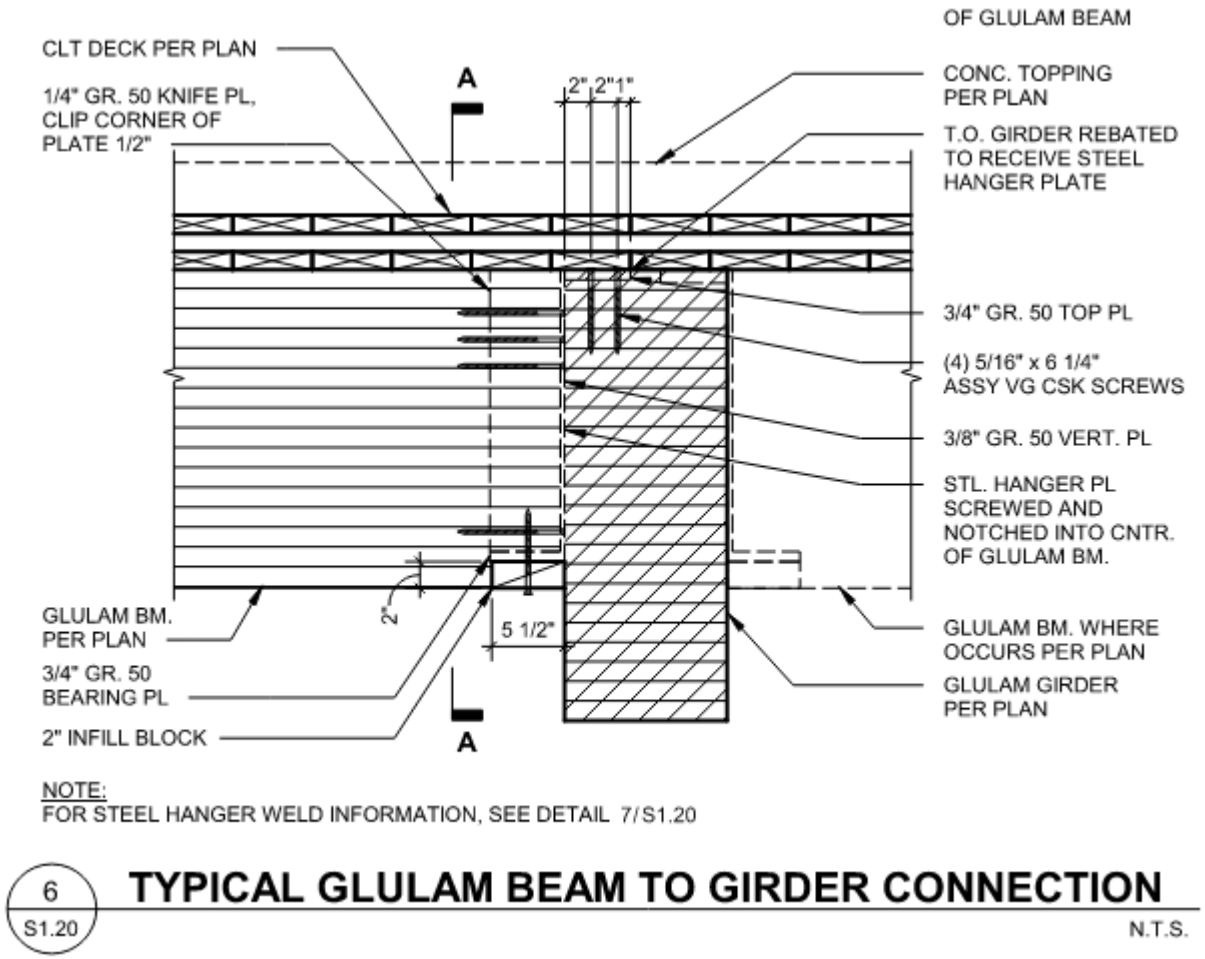
Project Neptune

100 MacAllister



Glulam Connections

- Impact: For a large mass timber project, the connections can contribute to a significant amount of GWP.
- Example:
  - (1) GLB 10 ¾ x 24
  - 31.81 $kgCO_2e$



Rebar Take-Off

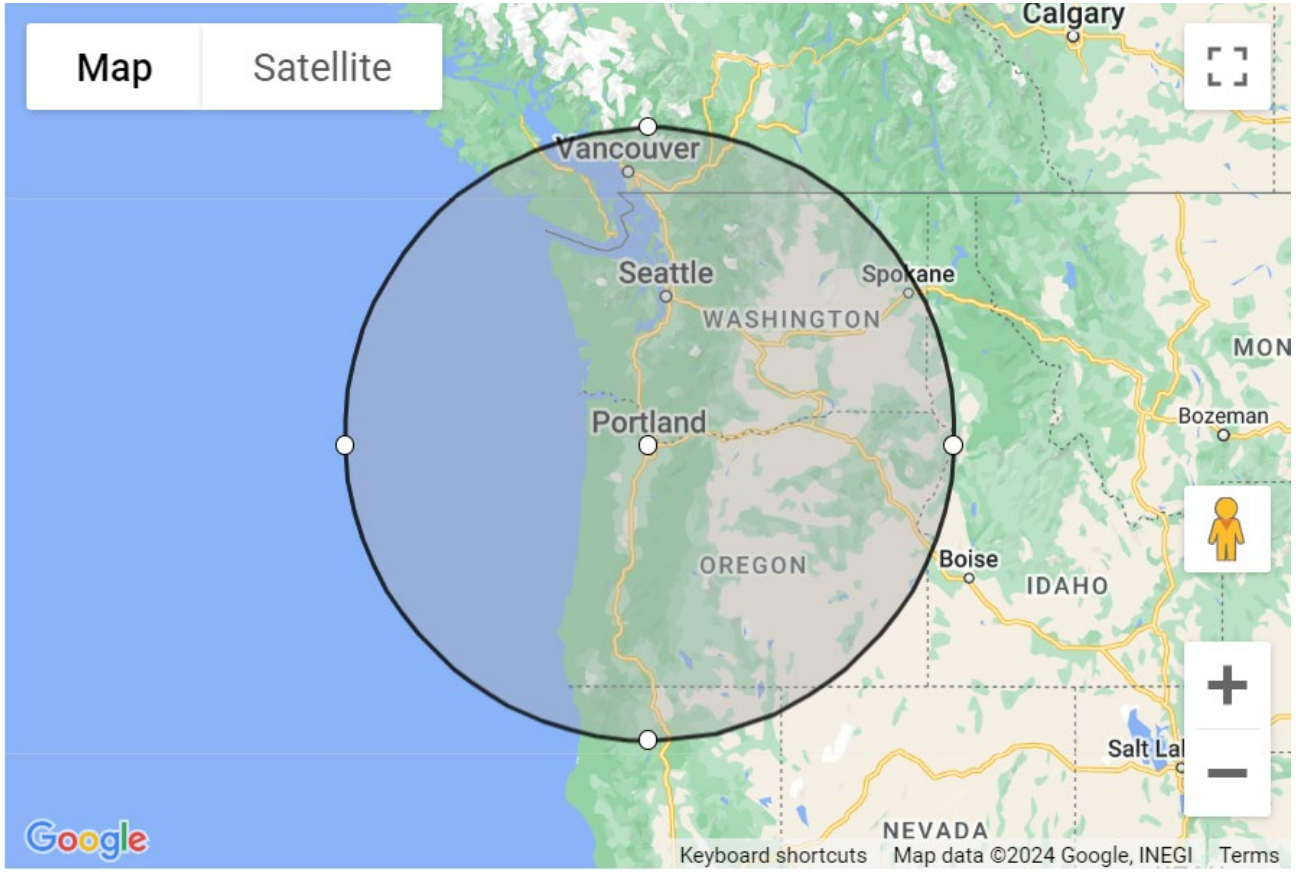
- Used a spreadsheet that was developed to preform a quantity take off for rebar
- The rebar comes from schedules and typical reinforcement
- Very time intensive task to sum up the quantity of rebar, but the impact is very high to a building

Rebar properties

		Long. Rebar		Trans. Rebar				P.T.		Volume	Weight	GWP
Beam ID	ID	Count	Size	Count	Length	Size	Spacing	Count	Area, in^2	(ft^3)	(kips)	(unit)
GBM1	1	(3)	#8	(1)	50''	#3	6''	()	0.00	4.2	2.1	854
	2	(3)	#8					()	0.00			
	3											
GBM2	4	(4)	#9	(1)	62''	#3	10''	()	0.00	2.3	1.2	854
	5	(3)	#7					()	0.00			
	6											
GBM3	7	(4)	#9	(1)	134''	#3	12''	()	0.00	4.4	2.2	854
	8	(4)	#9	(2)	65''	#6	12''	()	0.00			
	9	(4)	#9	(1)				()				
GBM4	7	(3)	#8	(1)	74''	#4	10''	()	0.00	2.5	1.2	854
	8	(3)	#8	(2)	35''	#6	12''	()	0.00			
	9	(3)	#8					()				
GBM5	7	(4)	#8	(1)	98''	#4	6''	()	0.00	12.2	6.1	854
	8	(4)	#8	(1)	25''	#4	6''	()	0.00			
	9	(2)	#8					()				

Transportation Distances

- OneClick underestimates and overestimates some of the transportation distances for module A4
- CLT distances: CLT transportation to the Pacific Northwest makes up an estimated 6.5% of the total GWP input, not enough to cancel out the benefits



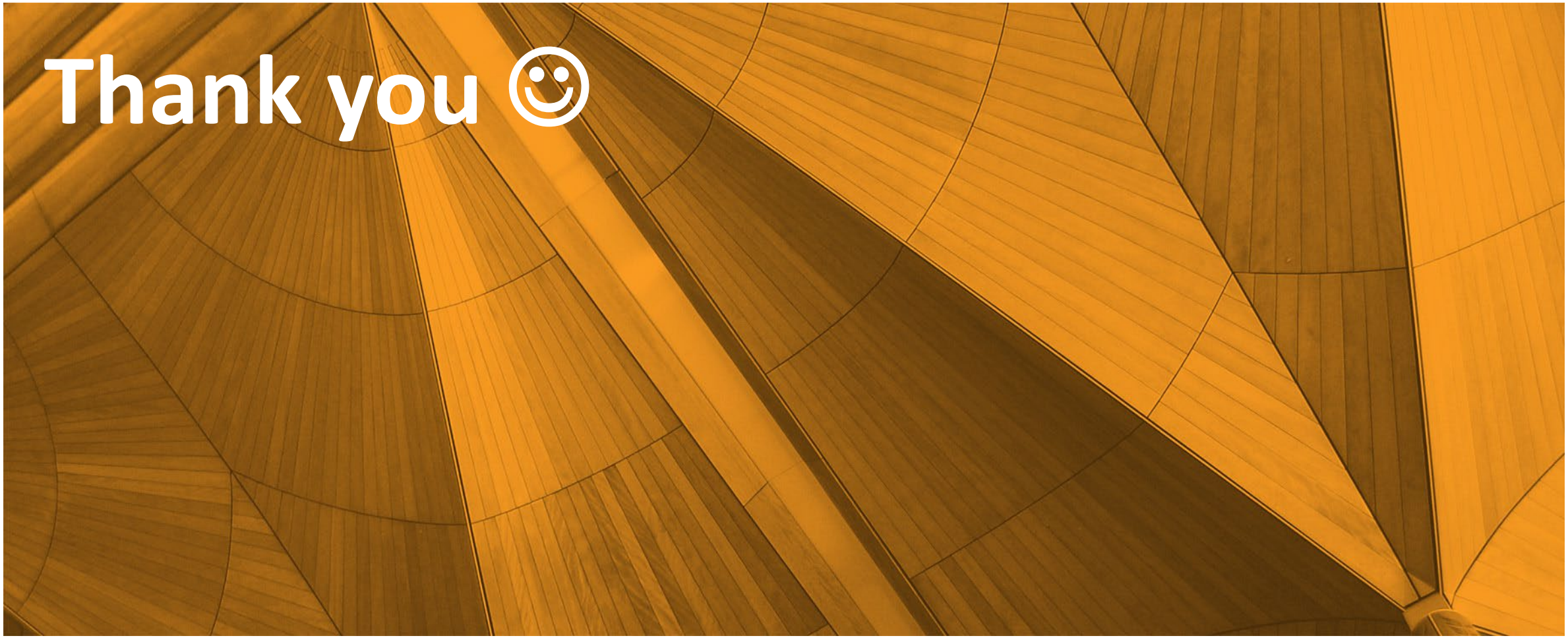
Existing Buildings

- 100 MacAllister is a 28-story historic building
- Module D study for reused, demoed, and salvaged material components of the buildings
- SE2050 guidance for Existing Buildings

  There are design guidelines for how structural engineering can be a major role in producing sustainable strategies to approach existing buildings. Since whole building LCA's are newer, modules beyond A1-A3 are still being explored.

My Intern Experience

- Great Mentorship at Holmes!
- In depth digging into OneClick and LCA’s
- Learn about different modules
- Collaboration with engineers in the company
- Appreciation for sustainability and excitement for continuing with it



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