Welcome

Walt Kanzler is a licensed Architect and LEED Fellow with over 25 years of experience in the Real Estate, Facilities, Design & Construction Industry. Walt has worked in both public and private organizations and is currently working with UC San Diego on a significant capital program totaling over $10 Billion. UC San Diego is transforming the campus with new and renovated facilities including transit, health care, housing, academic and research buildings, and mixed-use facilities to address future enrollment growth demands aimed at ensuring enhanced student experience, expanding research prowess, and improving the delivery of advanced healthcare. Walt's team ensures that the projects adhere to campus guidelines and coordinates unique project requirements with the goal of providing the best overall value for the University.

Walt Kanzler AIA LEED Fellow
Senior Director, Project Quality Management

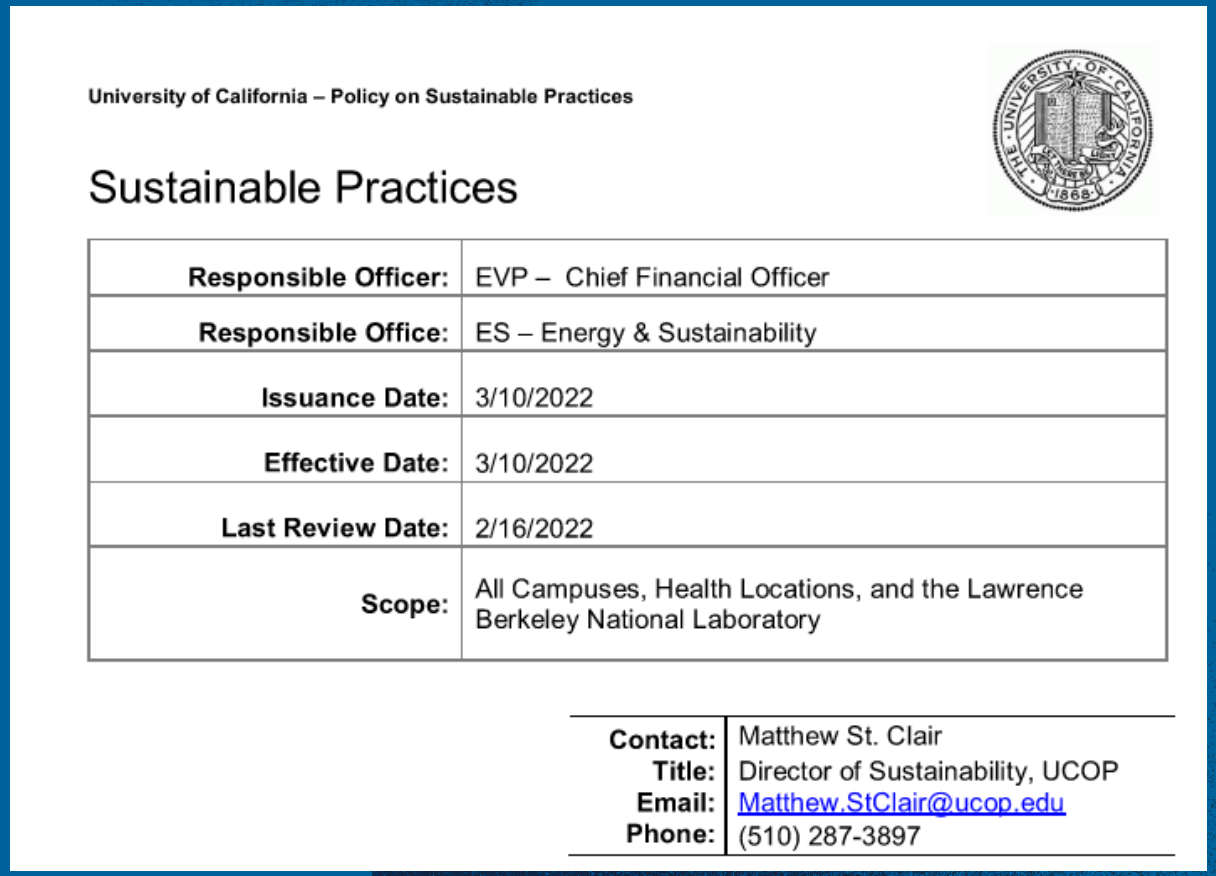
Agenda

1. UC Sustainable Practices Policy
2. UC San Diego Green Buildings
3. Embodied Carbon
4. Type 1 L Concrete

University of California

Policy on Sustainable Practices
Green Buildings

Policy History



University of California – Policy on Sustainable Practices

Sustainable Practices

Responsible Officer:	EVP – Chief Financial Officer
Responsible Office:	ES – Energy & Sustainability
Issuance Date:	3/10/2022
Effective Date:	3/10/2022
Last Review Date:	2/16/2022
Scope:	All Campuses, Health Locations, and the Lawrence Berkeley National Laboratory

Contact:	Matthew St. Clair
Title:	Director of Sustainability, UCOP
Email:	Matthew.StClair@ucop.edu
Phone:	(510) 287-3897

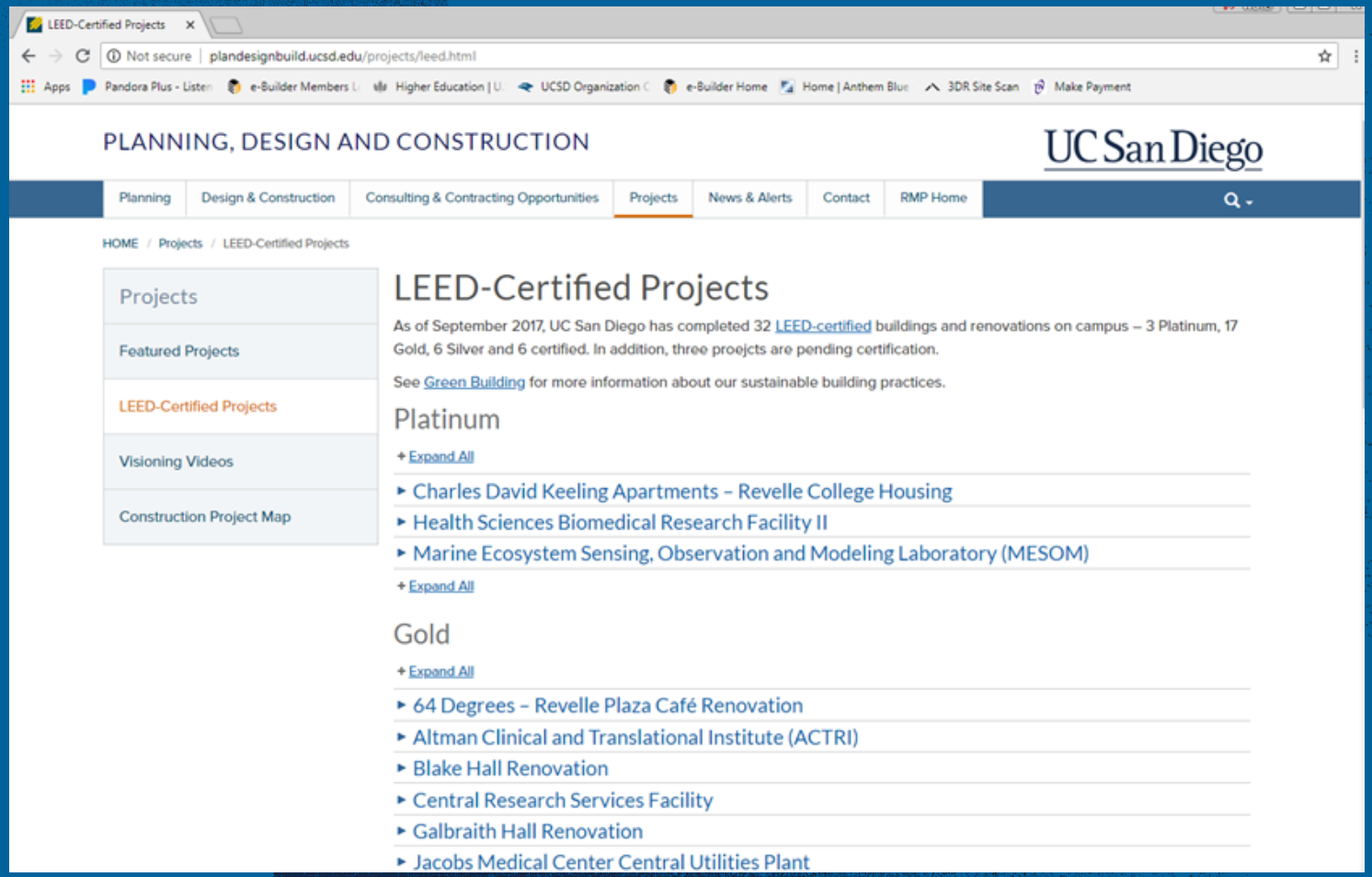
- In 2004 as a graduate student, Matthew St. Clair our current Chief Sustainability Officer and the University of California led a student campaign for the University of California system to adopt a comprehensive green building and clean energy planning policy. The University of California then hired Matt to implement this policy.
- The policy has grown to not only include LEED certified Green Buildings but also 8 other policy areas that are reviewed annually.
- https://policy.ucop.edu/doc/3100155/Sustainable Practices

Green Buildings

Sustainability Reporting – UC System Wide Green Buildings

- UC system has 408 LEED certified projects totaling 35 million square feet.
- UC San Diego currently has 50 LEED certified projects on campus for a total of ~6,125,000 square feet.

Planning, Design and Construction Website



https://plandesignbuild.ucsd.edu/design/leed/index.html

LEED Rating System –

Building Design and Construction Categories

Location & Transportation

Water Efficiency

Integrated Process

Sustainable Sites

Indoor Environmental Quality

Innovation in Design

Energy & Atmosphere

Materials & Resources

Regional Priority

Green Building Features

Marine Conservation & Technology Facility –

Building Reuse

- **Building Reuse**
  - Maintain existing floors, walls, and roof of historic 1961 building
- **Floors/Roof**
  - Precast concrete C channels
- **Walls**
  - Existing cast-in-place concrete walls
  - Historic blue mosaic tile
- **Vertical Circulation**
  - Existing concrete stairs and elevator shaft

North Torrey Pines Living & Learning Neighborhood

Embodied Carbon <35%

52.1 kg-CO2e/sf

Baseline

86.2 kg CO2e/sf

DESIGN FOR RESOURCES

Resource-Responsible Construction

NTPLLN's building materials are in keeping with UC San Diego's distinct architectural vernacular. Concrete structures and wood panels have limited additional finishes and substrates. Exterior fiber cement panels used throughout the campus feature irregular joint patterns designed to minimize waste and can be downcycled after use.

AIA COTE TOP 10 Award – North Torrey Pines Living & Learning Neighborhood

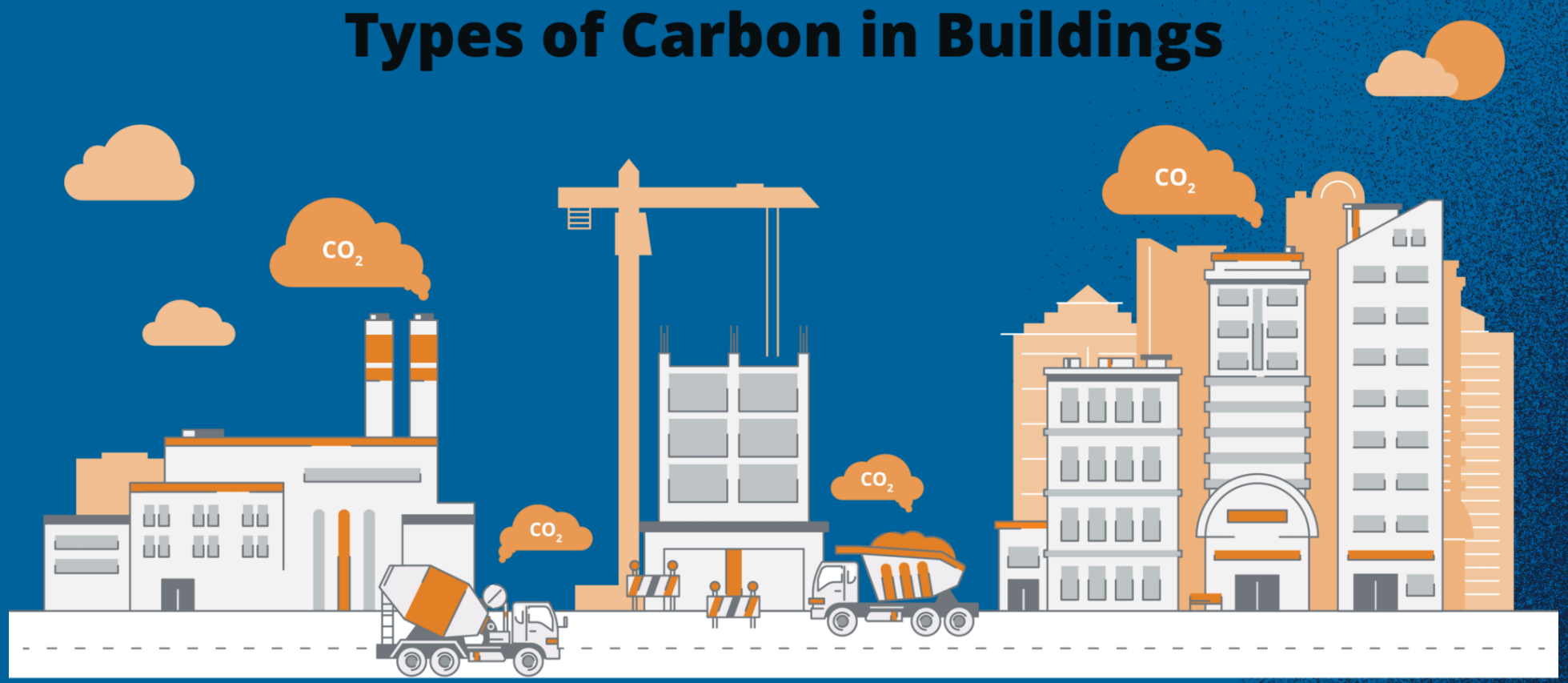
UC San Diego

RESOURCE MANAGEMENT AND PLANNING

https://www.aia.org/showcases/6597704-uc-san-diego-north-torrey-pines-living--le

EMBODIED CARBON

Embodied carbon



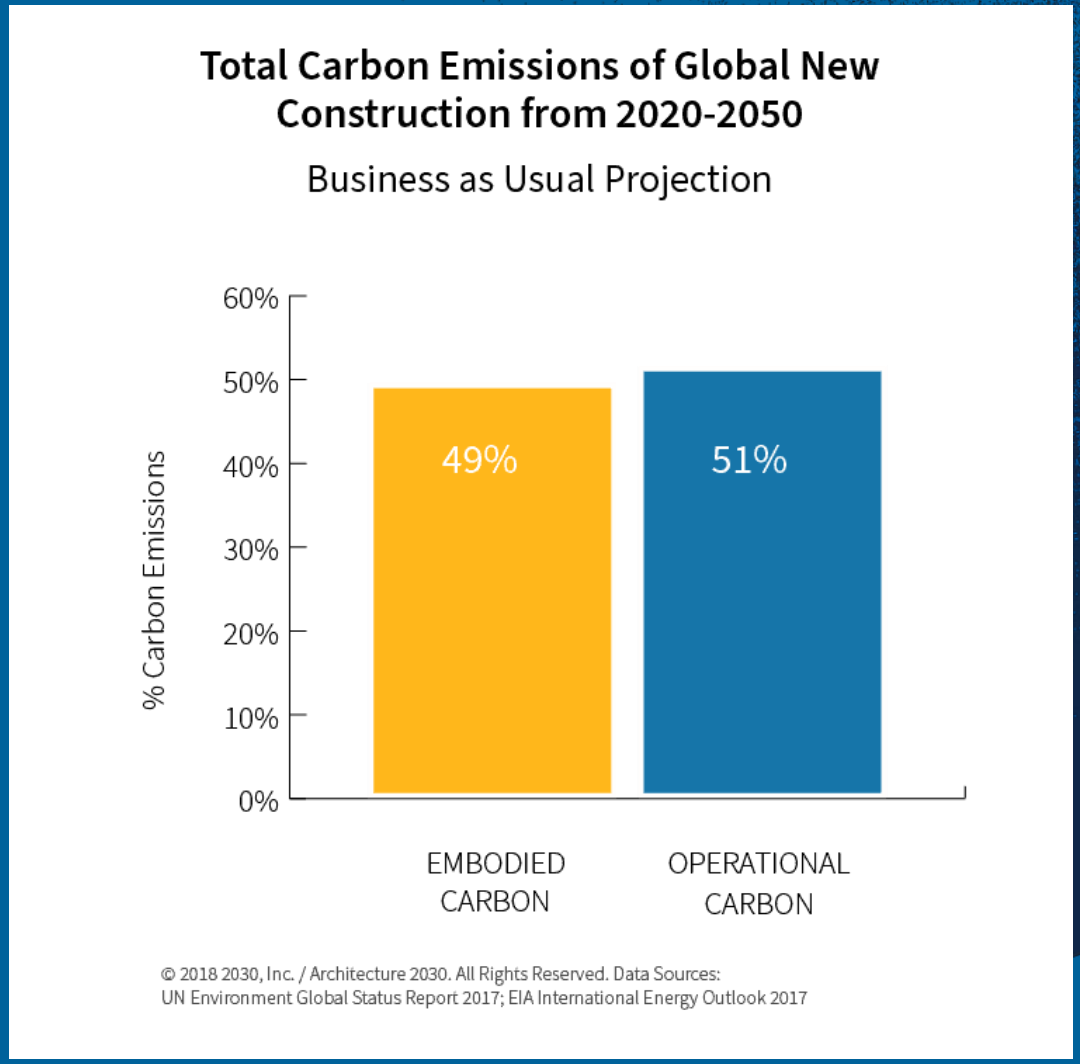
https://www.carboncure.com/

Embodied carbon

To address embodied carbon, a number of organizations including Architecture 2030, Structural Engineers 2050 Challenge (SE2050), the Carbon Leadership Forum, and the World Green Building Council have jointly taken on a mission to eliminate embodied carbon from buildings by the year 2050.

The California Building Code is including limits for embodied Carbon and other Greenhouse gas emissions for building materials in the next code cycle.

Buy Clean California has been in place for several years and tracks and limits Steel, Glass and Insulation Global Warming Potential (GWP) in New Buildings



Embodied carbon – Buy Clean California

The **Buy Clean California Act (BCCA)** (Public Contract Code Sections 3500-3505), states the Department of General Services (DGS), in consultation with the California Air Resources Board (CARB), is required to establish and publish the maximum acceptable Global Warming Potential (GWP) limit for four eligible materials.

The BCCA targets carbon emissions associated with the production of **structural steel** (hot-rolled sections, hollow structural sections, and plate), **concrete reinforcing steel**, **flat glass**, and **mineral wool board insulation**. When used in public works projects, these eligible materials must have a GWP that does not exceed the limit set by DGS.

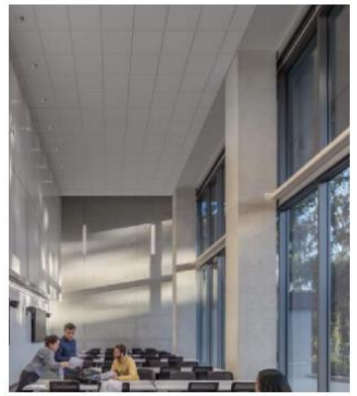
- UC Systemwide participates in Buy Clean California following the Public Contract Code as a state agency.

Type 1L Concrete

UC SAN DIEGO TYPE 1L CONCRETE PRESENTATION

McCARTHY

UC SAN DIEGO FRANKLIN ANTONIO HALL
CENTER FOR NOVEL THERAPEUTICS
TATA HALL



MOCK-UPS AND DESIGN

•We will pour many type of concrete mock ups, SOG, small wall panels, large wall panels, full design mock-up. This will help us review various items,
-plywood selection, reactions to different glues in the plywood, type of laminate face
-Slump, self-consolidating, flow-ability, vibration techniques, lift lines
-Slab set times for finishing considerations
-Finishers manpower and equipment
-Temperatures of concrete for IOR acceptance

•UCSD and design team need to be flexible to approve mix designs that deviate from specifications historical data might be limited, mock up samples, getting design team to approve spec deviation

•Fly ash and slag will cause color variations and inconsistencies

•Column edges, wall seam layout, tie hole type and layout are all decisions made during the mock up process
-We prefer chamfer due to two piece form work required for sharp corners, added cost
-Concrete sharp corners look good but can spall during normal building operations, end use should be considered
-Panel seam reveals can be costly

PLACEMENT, TEMPERATURE AND CURING

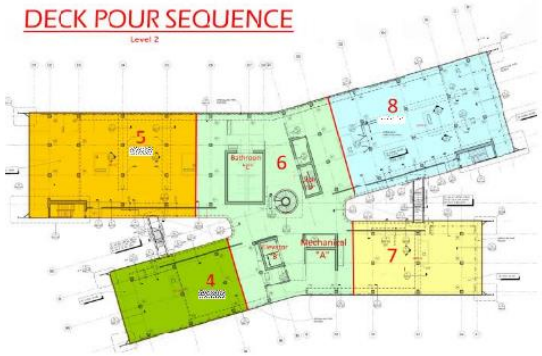
McCARTHY

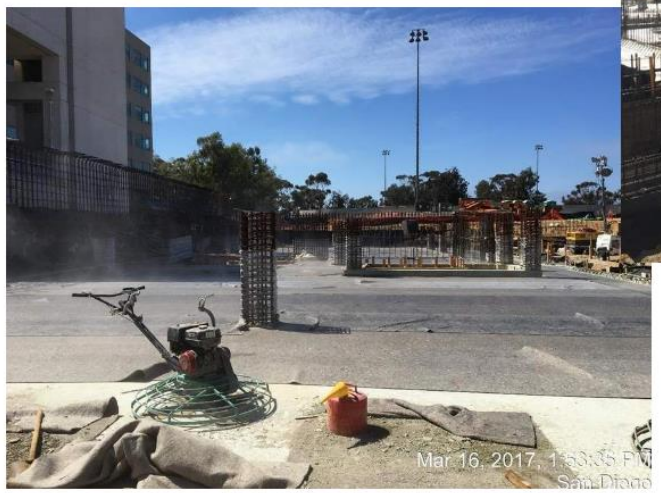
•Deck Curing is time sensitive, combination of cure seal and wet cure to ensure controlled temperature and curing
  -cure blankets or carpet pads used (ensure no dyes or staining possible)
  -E-cure or Atlas Quantum Cure are compatible with flooring finishes and are preferred
  -Type 1L can gain full strength in one week, this can help overall schedule by removing shoring and starting other trades earlier

•Wall Curing
  -no cure seals used
  -strip early spray water on it for first full shift, this will help color consistency and limit cracking

•Night pour advantages
  -Cooler temperatures
  -Better service (less traffic)
  -Better site logistics

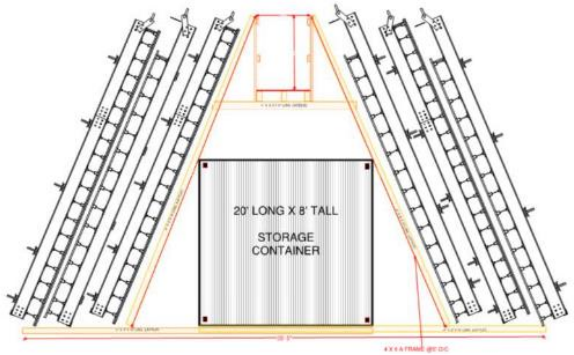
•Day pour disadvantages ,
  -possible need for chilled water or ice ($15+/- per yd)
  -possible need for admixtures to slow rate of hydration (price varies)
  -with sun hitting concrete, set time and workability can be greatly effected
  -proper manpower will also be required to minimize finish imperfections

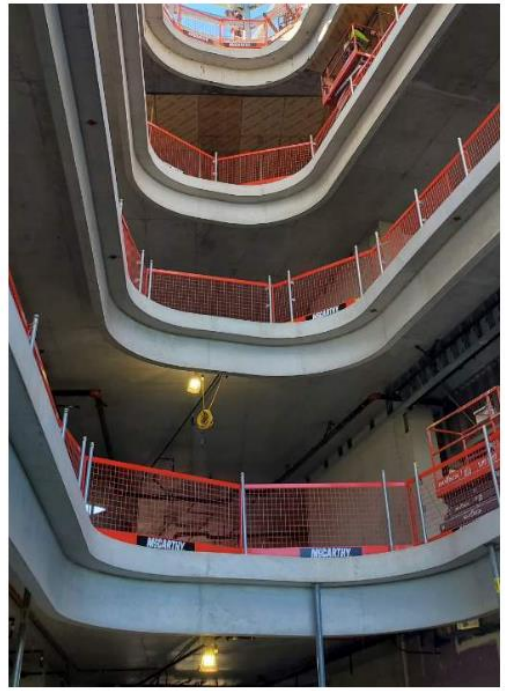




FORMWORK BEST PRACTICES

- Pre-Fabricated Radius Forms
  - -Each form was CNC milled and sheeted by UFP with plywood of our choice
  - -Price offset by less site labor
- Site logistics is critical for panel fabrication and storage
- Cemex is supplier of choice because they have reliable track-able service, modified mix designs, and they are a sole source for type 1L in the region





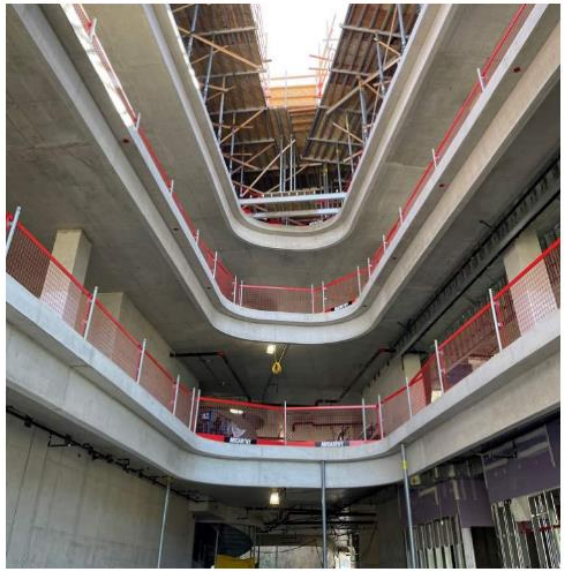
Universal Forest Products, Inc.

PERI

ATLAS CONSTRUCTION SUPPLY, INC.

CEMEX Building the future™

QUESTIONS?



Thank You!

wkanzler@ucsd.edu