UC IRVINE
CEE X OCSD 23

UCI Samueli
School of Engineering

Department of Civil and
Environmental Engineering

UCI-CEE TEAM

Front-N-Center

OC SUSTAINABILITY DECATHLON
OCSD23

P2S INC

UCI CEE Affiliates

VIGOROUS

Westgroup designs WD

LA URBAN FARMS

UCI Samueli School of Engineering
Department of Civil and Environmental Engineering

STRUCTURE CAST

ABREGO
Handmade in California

LUTRON

CNCA
CALIFORNIA NEVADA CEMENT ASSOCIATION

Irvine Ranch WATER DISTRICT

ASCE
University of California, Irvine
American Society of Civil Engineers

SoCalGas

TranSystems
EXPERIENCE | Transportation

CONTENTS

CHANGING MINDSETS

HOW CAN UCI CHANGE THE WAY PEOPLE THINK AND LIVE?

HOW TO SHARE OUR VISION SO THAT THE HOUSING INDUSTRY AND COMMUNITY WILL SEEK A MORE SUSTAINABLE AND CARBON-FREE PATH?

LUCID HOMES

OUR PROJECT WILL BE AN IDEAL EXAMPLE OF A SUSTAINABLE AND AFFORDABLE HOME THAT MINIMIZES ENVIRONMENTAL IMPACT WITH HEALTH AND SAFETY IN MIND.

KEY PRINCIPLES CONSIDERED

- ENERGY EFFICIENCY
- WATER CONSERVATION
- RENEWABLE ENERGY
- SUSTAINABLE MATERIALS
- DURABILITY AND RESILIENCE
- LIFE CYCLE ASSESSMENT

sample	water%	water (g)	cement%	cement (g)	w/c (~0.4)	EPS%	EPS (g)	Perlit%	Perlit (g)	total% =1
B	0.375	375.00	0.625	941.25	0.40	0	0	0	0	1.00
EPS80	0.075	75.00	0.125	188.25	0.40	0.80	17.6	0	0	1.00
EPS70	0.110	110.00	0.190	286.14	0.38	0.70	15.4	0	0	1.00
EPS60	0.150	150.00	0.250	376.50	0.40	0.60	13.2	0	0	1.00
EPS50	0.190	190.00	0.310	466.86	0.41	0.50	11	0	0	1.00
EPS40	0.225	225.00	0.375	564.75	0.40	0.40	8.8	0	0	1.00
EPS30	0.270	270.00	0.430	647.58	0.42	0.30	6.6	0	0	1.00
EPS20	0.303	303.33	0.500	753.00	0.40	0.20	4.4	0	0	1.00
EPS10	0.350	350.00	0.550	828.30	0.42	0.10	2.2	0	0	1.00
P80	0.070	70.00	0.130	195.78	0.36	0	0	0.80	56	1.00
P70	0.110	110.00	0.190	286.14	0.38	0	0	0.70	49	1.00
P60	0.150	150.00	0.250	376.50	0.40	0	0	0.60	42	1.00
P50	0.190	190.00	0.310	466.86	0.41	0	0	0.50	35	1.00
P40	0.225	225.00	0.375	564.75	0.40	0	0	0.40	28	1.00
P30	0.270	270.00	0.430	647.58	0.42	0	0	0.30	21	1.00
P20	0.300	300.00	0.500	753.00	0.40	0	0	0.20	14	1.00
P10	0.350	350.00	0.550	828.30	0.42	0	0	0.10	7	1.00
P10EPS10	0.300	300.00	0.500	753.00	0.40	0.10	2.2	0.10	7	1.00
P10EPS20	0.260	260.00	0.440	662.64	0.39	0.10	2.2	0.20	14	1.00
P10EPS30	0.225	225.00	0.375	564.75	0.40	0.10	2.2	0.30	21	1.00
P10EPS40	0.190	190.00	0.310	466.86	0.41	0.10	2.2	0.40	28	1.00
P10EPS50	0.150	150.00	0.250	376.50	0.40	0.10	2.2	0.50	35	1.00
P10EPS60	0.110	110.00	0.190	286.14	0.38	0.10	2.2	0.60	42	1.00
P10EPS70	0.070	70.00	0.130	195.78	0.36	0.10	2.2	0.70	49	1.00
P10EPS80	0.040	40.00	0.060	90.36	0.44	0.10	2.2	0.80	56	1.00
P20EPS10	0.260	260.00	0.440	662.64	0.39	0.20	4.4	0.10	7	1.00
P20EPS20	0.225	225.00	0.375	564.75	0.40	0.20	4.4	0.20	14	1.00
P20EPS30	0.190	190.00	0.310	466.86	0.41	0.20	4.4	0.30	21	1.00
P20EPS40	0.150	150.00	0.250	376.50	0.40	0.20	4.4	0.40	28	1.00
P20EPS50	0.110	110.00	0.190	286.14	0.38	0.20	4.4	0.50	35	1.00
P20EPS60	0.080	80.00	0.120	180.72	0.44	0.20	4.4	0.60	42	1.00
P20EPS70	0.040	40.00	0.060	90.36	0.44	0.20	4.4	0.70	49	1.00
P30EPS10	0.225	225.00	0.375	564.75	0.40	0.30	6.6	0.10	7	1.00
P30EPS20	0.190	190.00	0.310	466.86	0.41	0.30	6.6	0.20	14	1.00
P30EPS30	0.150	150.00	0.250	376.50	0.40	0.30	6.6	0.30	21	1.00
P30EPS40	0.110	110.00	0.190	286.14	0.38	0.30	6.6	0.40	28	1.00
P30EPS50	0.080	80.00	0.120	180.72	0.44	0.30	6.6	0.50	35	1.00
P30EPS60	0.040	40.00	0.060	90.36	0.44	0.30	6.6	0.60	42	1.00
P40EPS10	0.190	190.00	0.310	466.86	0.41	0.40	8.8	0.10	7	1.00
P40EPS20	0.150	150.00	0.250	376.50	0.40	0.40	8.8	0.20	14	1.00
P40EPS30	0.110	110.00	0.190	286.14	0.38	0.40	8.8	0.30	21	1.00
P40EPS40	0.070	70.00	0.130	195.78	0.36	0.40	8.8	0.40	28	1.00
P40EPS50	0.040	40.00	0.060	90.36	0.44	0.40	8.8	0.50	35	1.00
P50EPS10	0.150	150.00	0.250	376.50	0.40	0.50	11	0.10	7	1.00
P50EPS20	0.110	110.00	0.190	286.14	0.38	0.50	11	0.20	14	1.00
P50EPS30	0.070	70.00	0.130	195.78	0.36	0.50	11	0.30	21	1.00
P50EPS40	0.040	40.00	0.060	90.36	0.44	0.50	11	0.40	28	1.00
P60EPS10	0.110	110.00	0.190	286.14	0.38	0.60	13.2	0.10	7	1.00
P60EPS20	0.070	70.00	0.130	195.78	0.36	0.60	13.2	0.20	14	1.00
P60EPS30	0.040	40.00	0.060	90.36	0.44	0.60	13.2	0.30	21	1.00
P70EPS10	0.110	110.00	0.190	286.14	0.38	0.70	15.4	0.10	7	1.10
P70EPS20	0.070	70.00	0.130	195.78	0.36	0.70	15.4	0.20	14	1.10
P80EPS10	0.040	40.00	0.060	90.36	0.44	0.80	17.6	0.10	7	1.00

Matrix for different mixes developed

STRUCTURAL AND MATERIALS

ONE OF OUR GOALS IS TO DESIGN AND DEVELOP A LIGHTWEIGHT CONCRETE FOR THERMAL INSULATION AND STRUCTURAL APPLICATIONS.

LAB WORK AND TESTING

STUDENT ENGAGEMENT 2023

CEE@UCI TEAM AT SUSTAINABILITY RESOURCE CENTER'S SUSTAINIVAL

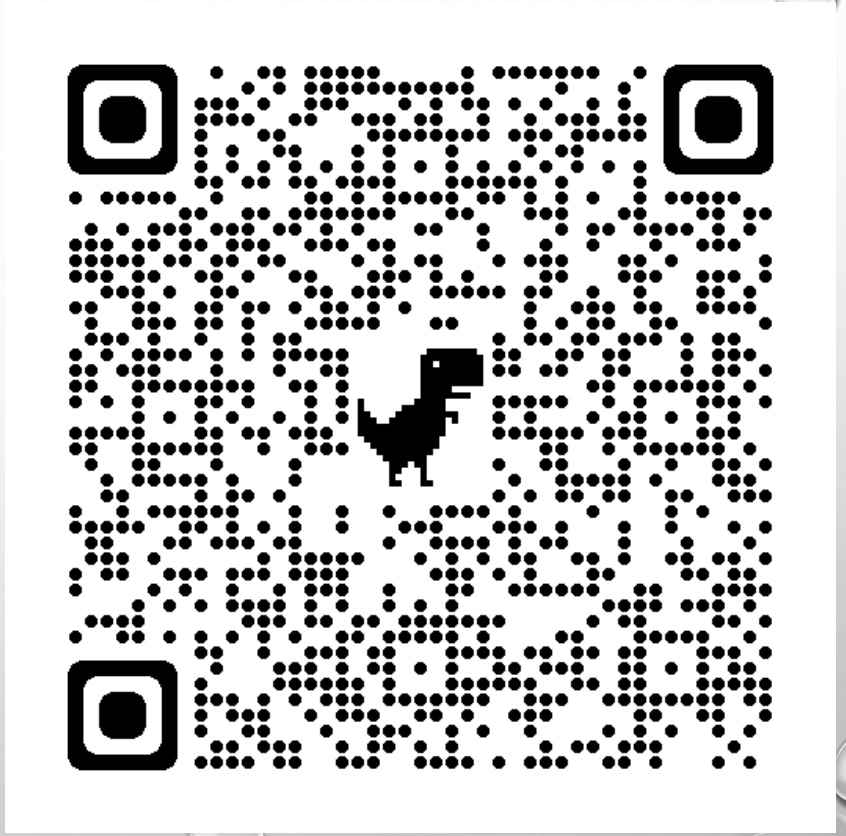
FROM LEFT: EMILY SONG, NICHOLAS MAO, ASHLEY CHUNG, NHI HOANG, AND SPENCER VU -

Site Tour: LA Urban Farms

From left: Emily Song, Nicholas Mao, Shanni Wu, Faisal Almegren, Wendy Coleman (LA Urban Farms CEO), Professor Ayman Mosallam, and Edith Carranza - March 9, 2023.

Thank You!

- Website: UCI-OCSD.team
- info@uci-ocsd.team



Normalize Low-Impact Living

by creating smart communities and future-proofing buildings

Need for carbon- and energy-free recipe for design