



EUCLID CHEMICAL

Decorative Concrete

Innovations in Sustainability

NRMCA Session 19
April 17, 2024



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**BUILDING A
BETTER WORLD**

With

PROVEN. SUSTAINABLE. SOLUTIONS.

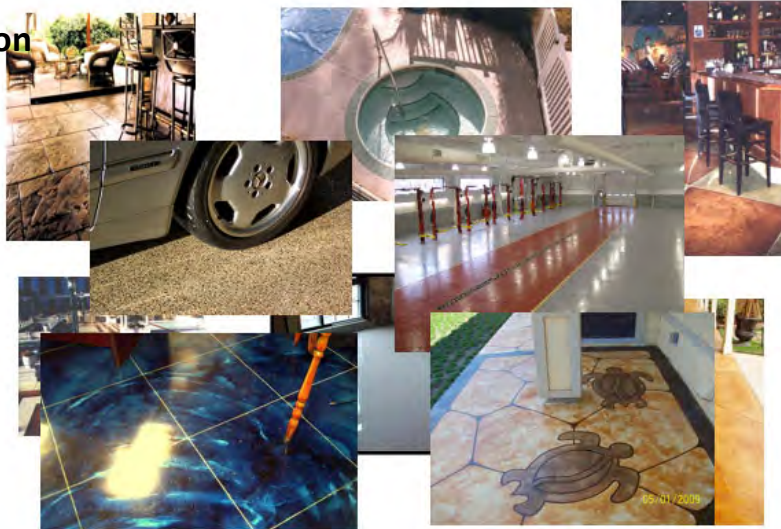


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Decorative Concrete

New Construction

Renovation



Decorative Concrete and PLC

- The concrete industry has begun replacing Type 1/II OPC in mixes with Type 1L Portland Limestone Cement (PLC).
- This has the potential of reducing the carbon footprint of concrete by 10%, without compromising performance.
- Decorative Concrete products work in harmony with the cement changes.

Integral Color



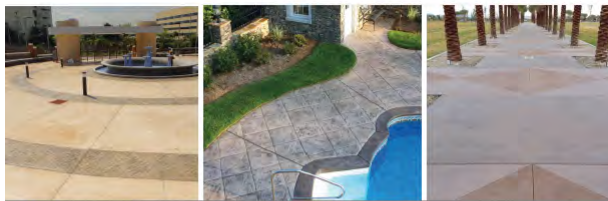
Recycled by-product of
 the steel industry



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Integral Color

HIGH SRI COLORS + LEED



- COLORS WITH SRI VALUES OF 29 OR HIGHER
- EARN LEED POINTS
- REDUCE HEAT ISLAND EFFECT
- COOLER TO THE TOUCH AND BARE FEET
- MOST COLORS AVAILABLE IN POWDER, GRANULAR, AND LIQUID
- REDUCE YOUR ENERGY NEEDS
- SLAB ON GRADE, VERTICAL, PRE-CAST, TILT UP APPLICATIONS
- MEETS ASTM C-979 STANDARDS

YUMA GOLD Solar Reflective Index when made with: Gray Cement: 36.3 White Cement: 69.9 	DESERT TAN Solar Reflective Index when made with: Gray Cement: 30.6 White Cement: 35.9 	SAND BUFF Solar Reflective Index when made with: Gray Cement: --- White Cement: 29.6
PHOENIX TAN Solar Reflective Index when made with: Gray Cement: 36.7 White Cement: 54.1 	AUSTIN BUFF Solar Reflective Index when made with: Gray Cement: 41.5 White Cement: 70.6 	SAN JOSE BUFF Solar Reflective Index when made with: Gray Cement: 34.6 White Cement: 72.6
FIESTA Solar Reflective Index when made with: Gray Cement: 34.9 White Cement: 50.2 	PECOS BEIGE Solar Reflective Index when made with: Gray Cement: 35.6 White Cement: 70.7 	SANDSTONE Solar Reflective Index when made with: Gray Cement: 41.9 White Cement: 78.4
SALTILLO Solar Reflective Index when made with: Gray Cement: 39.1 White Cement: 70.3 	MAPLEWOOD Solar Reflective Index when made with: Gray Cement: 37.7 White Cement: 66.2 	SOMBRA Solar Reflective Index when made with: Gray Cement: 40.6 White Cement: 66.0



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Integral Color

On site pigment dispensers

Formulas for most colors from most mfgs

Reduces number of orders, shipments

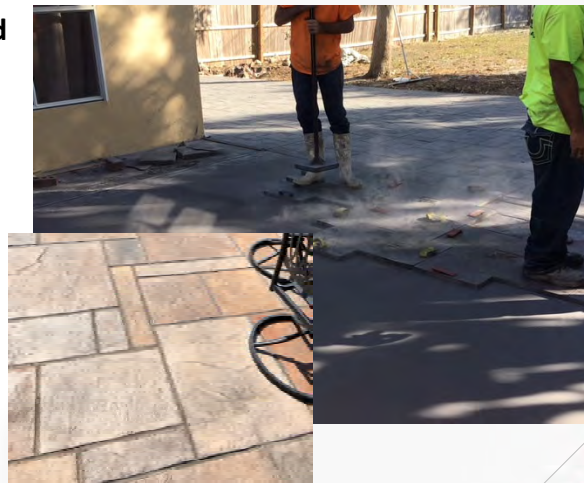
= less fuel, less CO2



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Stamped Concrete

Replicates natural materials that would otherwise be quarried and shipped



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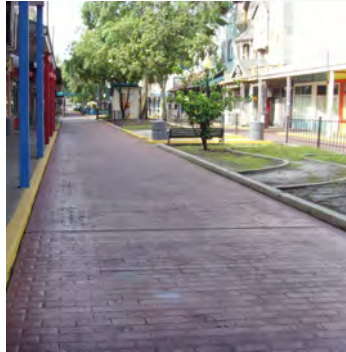
Stamped Concrete

Long life cycle = sustainability

10 yrs old



25 yrs old



12 yrs old



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Stamped Concrete

Long life cycle
Not so much

• Asphalt



• Pavers



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Exposed Aggregate Finishes

Water based surface retarders
Highly durable surface

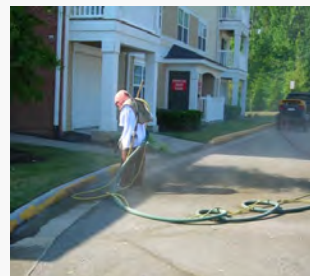


Specialty aggregates incl recycled glass



Exposed Aggregate Finishes

Alternative?
Probably want to avoid



Exposed Aggregate Finishes

Precast too!



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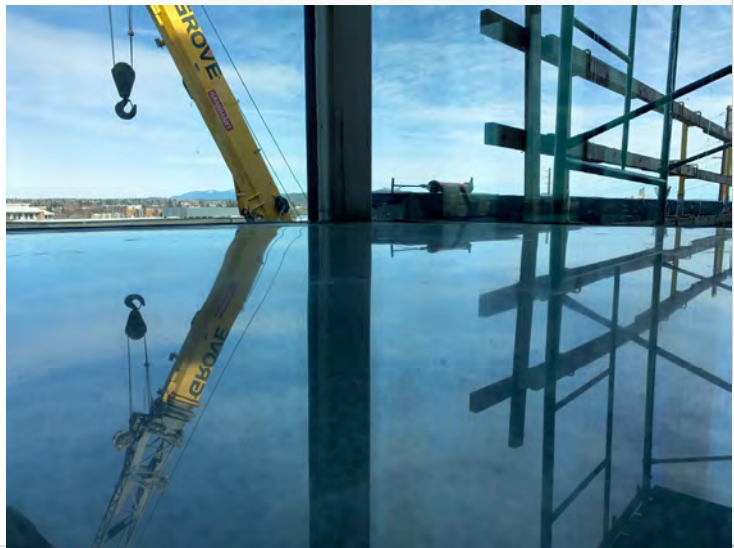
Polished Concrete

Light Reflective- cuts energy use

Already there- no floor coverings
mfg elsewhere and shipped in

Densifiers & Guards are WB
Low/no VOCs

Low maintenance, fewer
cleaning chemicals



Polished Concrete

Indoor Air Quality

Building Material	VOC Emission (mg/m ³ h)
Vinyl flooring	2.3
Particle board	2.0
Plywood	1.0
Acrylic Latex Paint	0.43
Linoleum	0.22
Carpet	0.080
Gypsum board	0.026
Concrete	0.003

Times Higher Than Concrete

767

27



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Concrete Stains

Acrylics

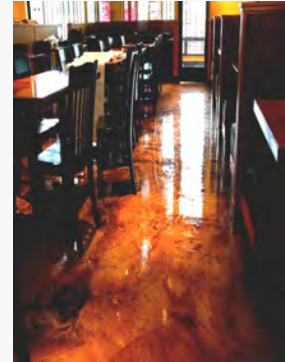
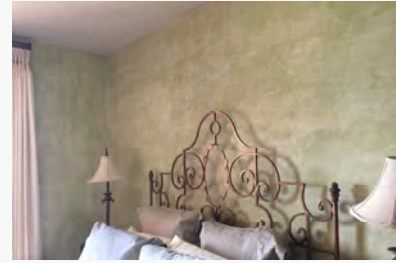
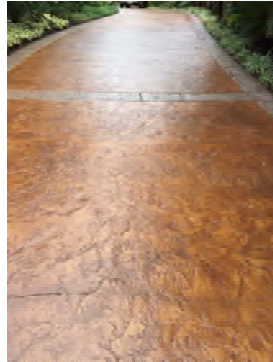
Low VOC and WB Versions



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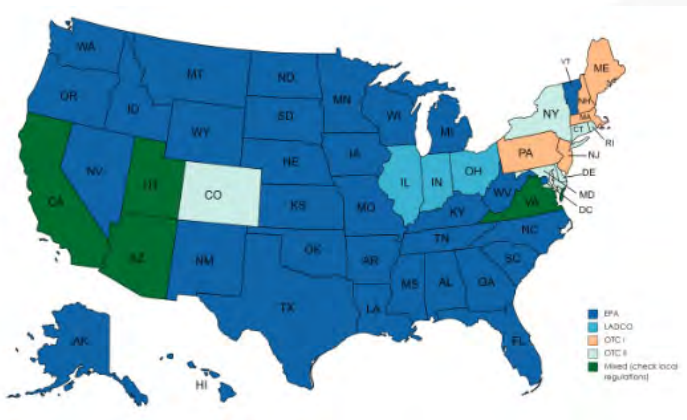
Concrete Stains

Acid Stains  WB Semi-Trans



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Sealers and Coatings



Since 1998

VOC Regulations have gotten stricter

More and more states have enacted tougher regs

Headed to WB only?



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Sealers and Coatings

Many mfgs have 3 or 4 formulas
(<800, <350, <100, wb)

What is a coating, what is a sealer, what is a
cure and seal? It can be inconsistent from
mfg to mfg and confusing!

Legislated changes, now proactive



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Sealers and Coatings

High solids options = low VOCs

100% solids = no VOCs

Added benefit of durability and chem
Resistance

Two-part systems



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Sealers and Coatings



Decorative Concrete- Innovations in Sustainability

Decorative Concrete is evolving faster than ever

New eco friendly chemistry is in constant development

Reduction is use of 'forever chemicals' -- PFA's

Alternatives for Chromates, BPAs, and Benzene are being developed

Many innovations are behind the scenes in formulation and mfg processes.

Lower energy, lower water, lower waste

Type II, Portland Limestone Cement partners well with Decorative

Compatible with Integral color

Utilized in Decorative overlays and Dry Shakes



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