



U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON

2011

Building a More Sustainable Future: A Look at Industry Trends in Building Design

Saulo Rozendo

Global Strategic Marketer, LEED AP BD+C
Dow Corning



Agenda

- **A sustainable future starts now!**

It is important to harness our passion and enthusiasm to take action and produce change today.

- **Industry trends to strengthen innovation**

Today, buildings are a profitable business influenced by innovation; additional muscle to manpower is required to build them.

- **Collaboration is key for sustainability in construction**

Successful relationships are based on mutual creation of value, in which companies, government and society benefit

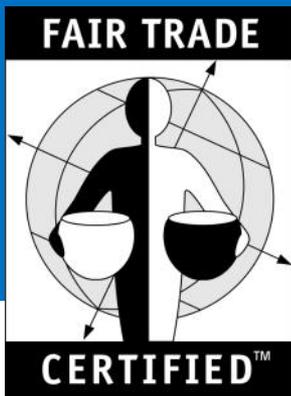
- **We help you invent the future™**



A Sustainable Future Starts Now!

- As a consumer of regular products and services
- As a developer, making decisions at work
- As an innovator, entrepreneur and thought leader

- ✓ People in general know that options exist
- ✓ Sustainable options are convenient, available everywhere
- ✓ It is a matter of go out and get them





A Sustainable Future Starts Now!

- As a consumer of regular products and services
- As a developer, making decisions at work
- As an innovator, entrepreneur and thought leader

- ✓ Many options are available; just a few of them are easy to incorporate
- ✓ Decisions are usually made at the executive level (top down)





A Sustainable Future Starts Now!

- As a consumer of regular products and services
- As a developer, making decisions at work
- As an innovator, entrepreneur and thought leader

- ✓ There is **knowledge** to create
- ✓ Technology to develop
- ✓ Markets to incorporate
- ✓ Regulation to standardize

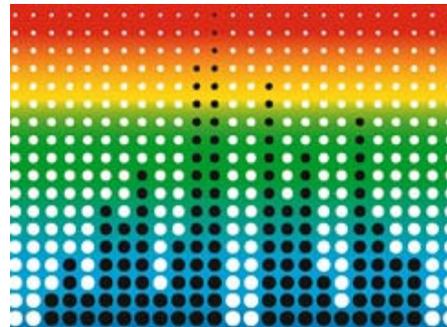
TRENDS





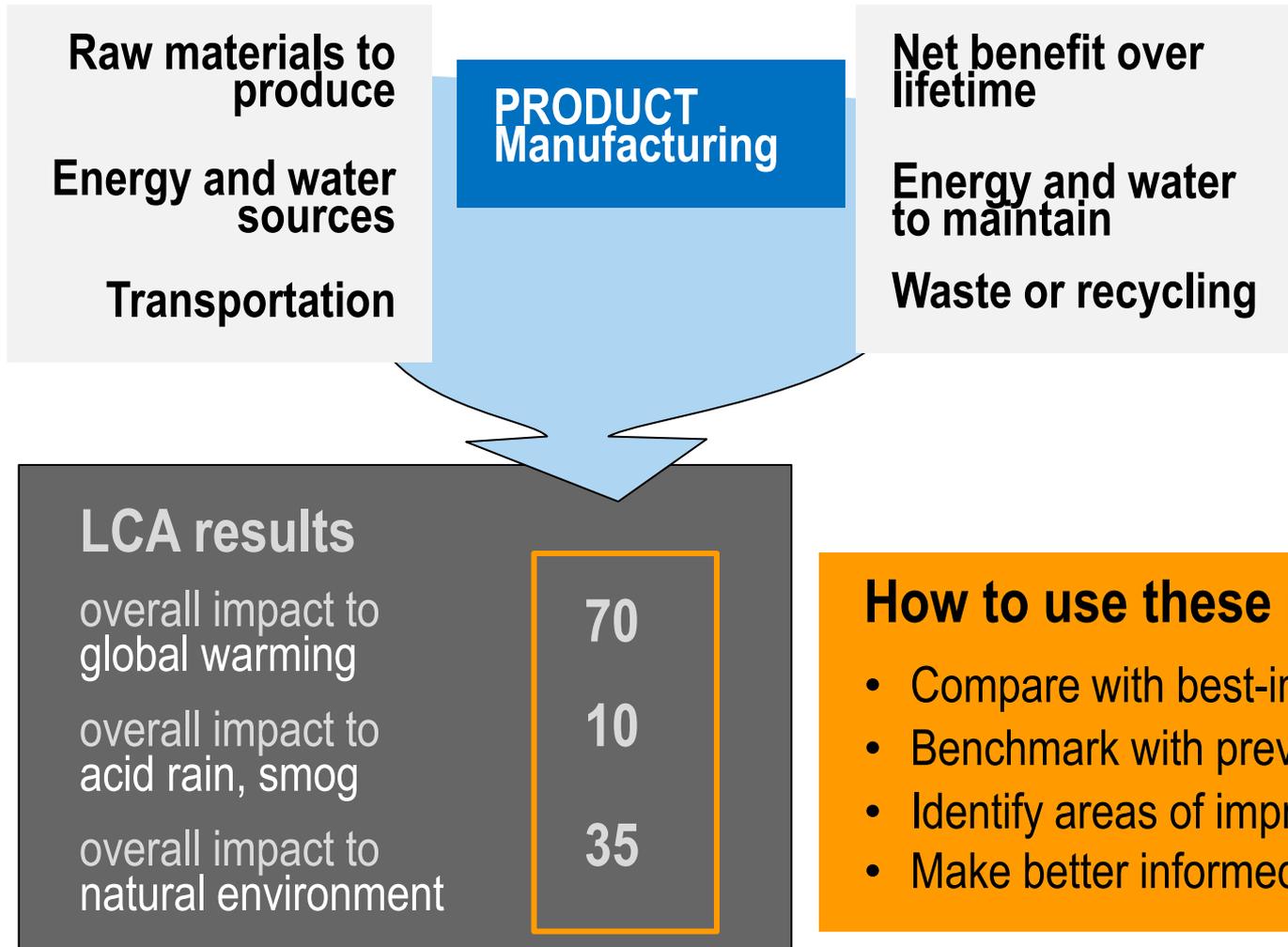
Industry trends to strengthen innovation

- **Life cycle assessment** to select building materials
- **Building simulation** to anticipate occupant comfort, construction costs
- **Performance certificates** to change consumer behavior



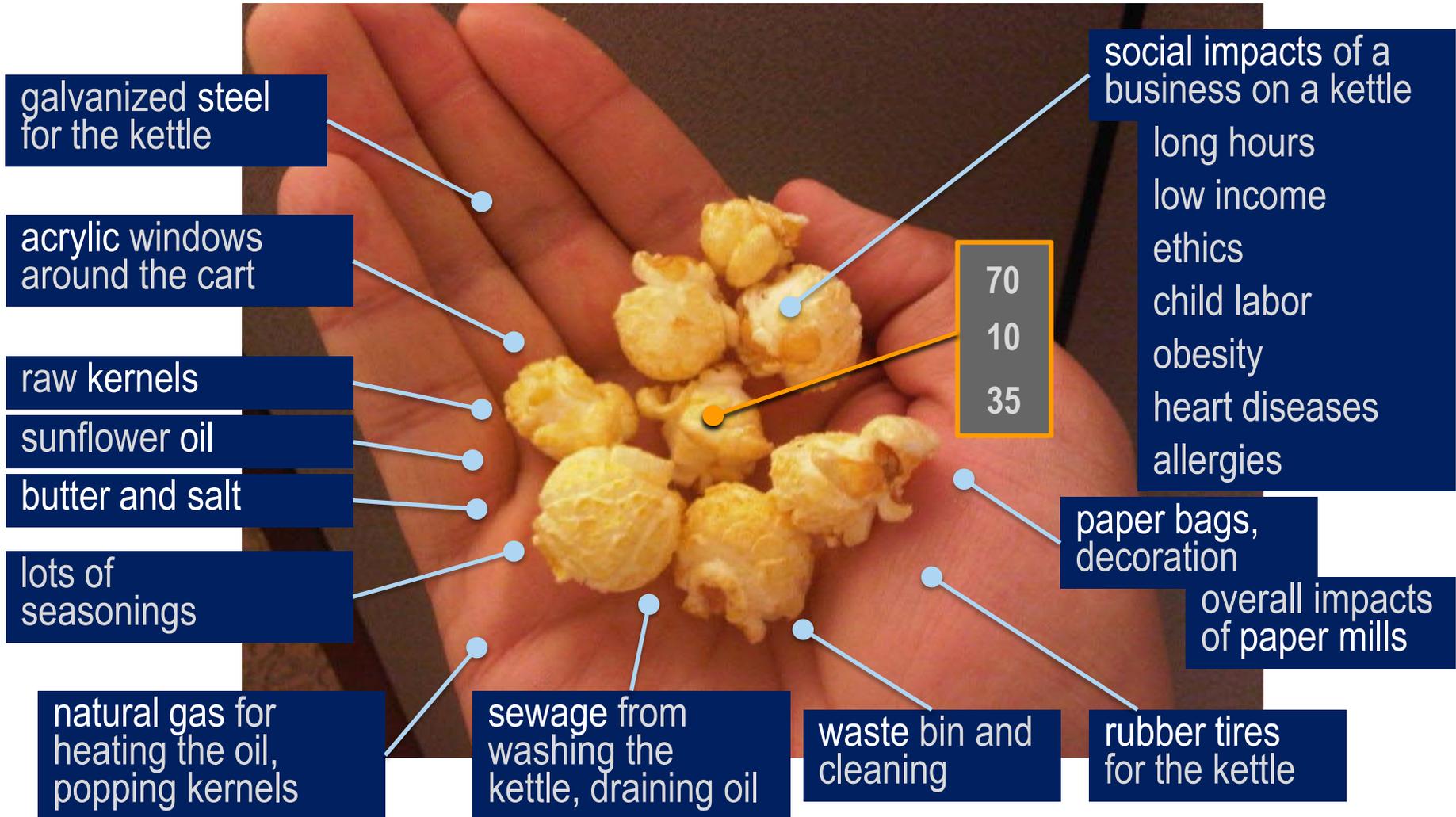


Life Cycle Assessment – Introduction



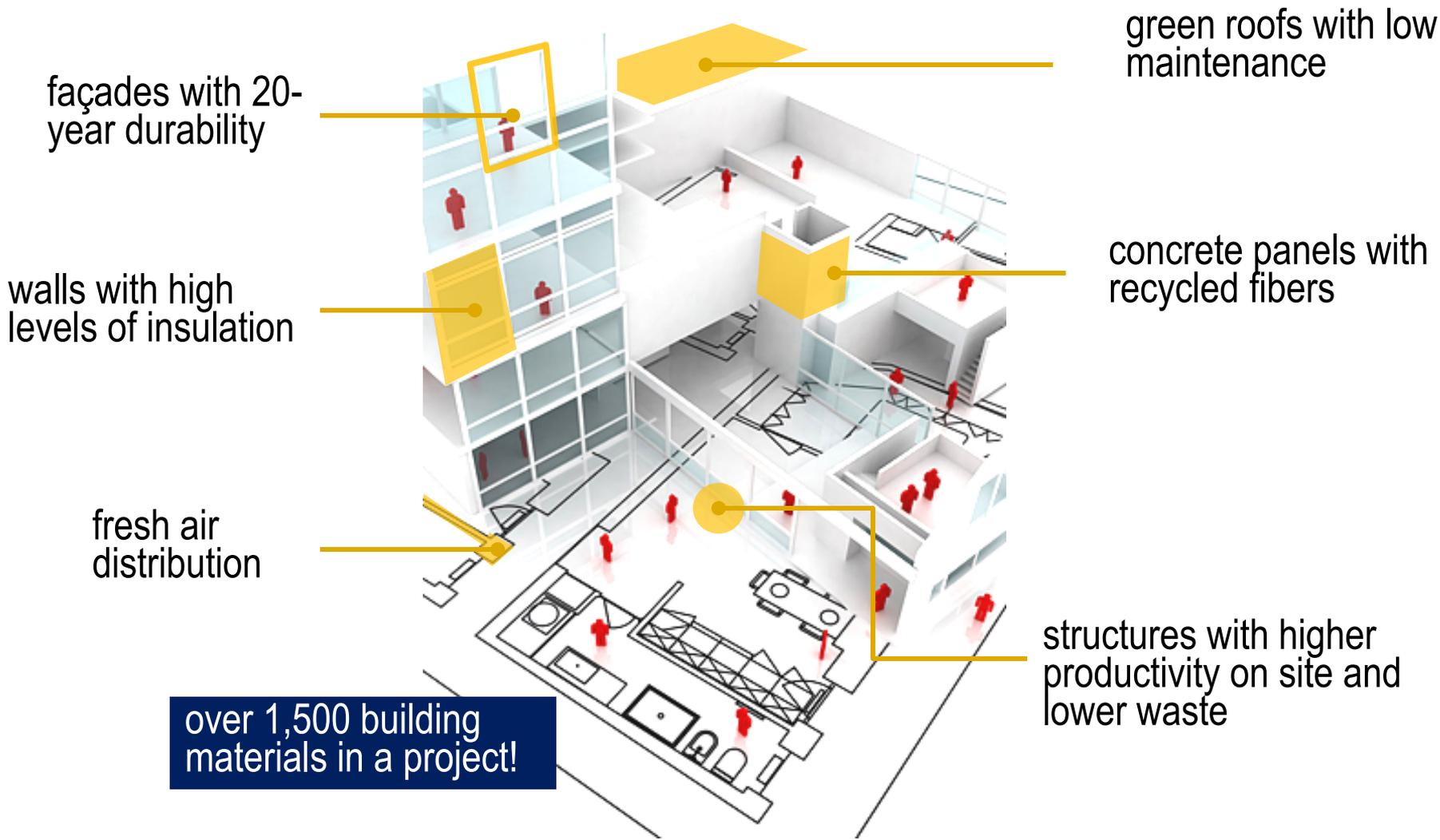


LCA from a “popcorn perspective”



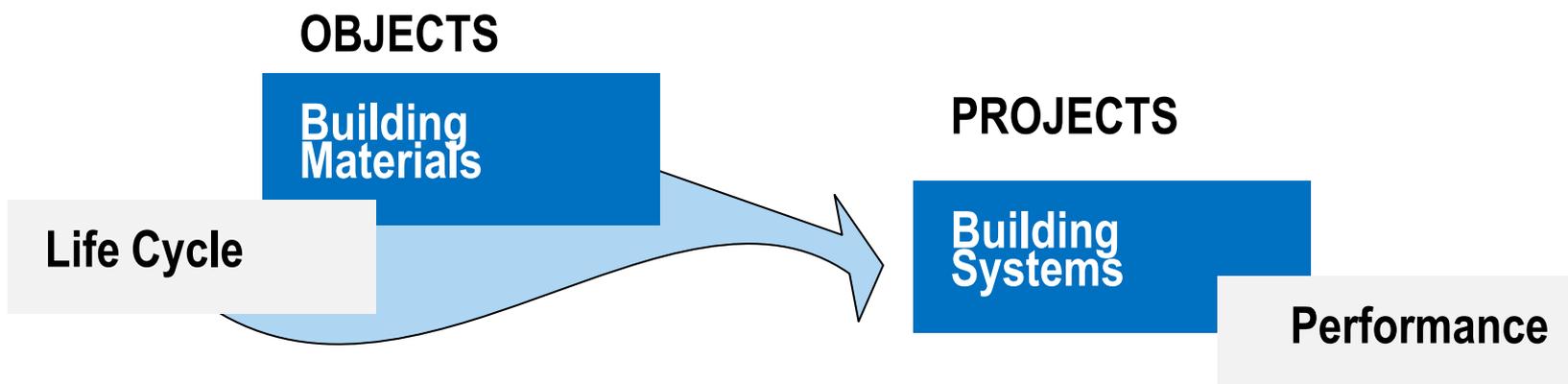


Translating LCA to building materials





Building Simulation – Introduction



Simulation

- energy demand and peak consumption
- structural stability and durability
- acoustical and visual comfort
- constructability and work planning



How to use software

- Create multiple scenarios
- Anticipate utility costs
- Reduce construction conflicts
- Make better informed choices



Building simulation to address complexity

Design Concepts



Rapid Urbanization



Economic Constrains



No Time to Deliver





Performance certificates – Introduction

After completion, buildings must deliver a performance level according to their **Basis of Design** and **Project Requirements**

Demonstration of such performance is recognized by 3rd party labels



Information can be used to promote sales

IRA: 340452	Garage: 3.0 Car Attached Door Opener
MLS: 110103	Heat: Baseboard Forced Air Gas
Lot Size: 117x142	Miscellaneous: City Sewer City Water
Acres: 0.38	Schools: Adams Jefferson Midland High School
Approx. Square Feet: 2809	Taxes / Valuations / Assessments: Non-Homestead Tax
Full Baths: 2	Terms: Cash Conventional FHA VA
Half Baths: 1	Bedroom 1 / Master: 14 x 19 1st Floor
Bedrooms: 4	Bedroom 2: 12 x 11 2nd Floor
Year Built: 2011	Bedroom 3: 14 x 12 2nd Floor
Taxes: \$104	Bedroom 4: 12 x 14 2nd Floor
SEV: 31500.00	Dining Room: 12 x 11 1st Floor
Additional Features: Central Air Fireplace Foyer Kloha Contracting Main Floor Laundry Porch	Kitchen: 1st Floor 9 x 17
Appliances Included: Dishwasher Disposal Gas Water Heater Microwave	Laundry Room: 11 x 5 1st Floor
Architectural Style: 2 Story New Construction Traditional	Living Room: 17 x 18 1st Floor
Driveway: Concrete	
Exterior/Siding: Brick Vinyl	
Foundation: Full Basement Poured	



Performance certificates – Categories

Energy efficiency

Renewable energy source

Water efficiency

Green procurement



Indoor air quality

Commitment to an environmental policy

Selected aspects of high performance green buildings

durability
carbon footprint
recyclability



Anatomy of an innovation muscle



Laboratory



**Materials
with data**

**Building
simulation**



**Better
buildings**





Collaboration in the construction industry



Job Sites



OEMs



Design Firms

Innovation to deliver

- Regenerative solutions
- High performance building
- New industry capabilities
- More job opportunities

In collaboration with:

- Universities
- Local, State, Federal Institutions
- Civil Society
- Media



Saulo Rozendo

s.rozendo@dowcorning.com

twitter.com/saulonet