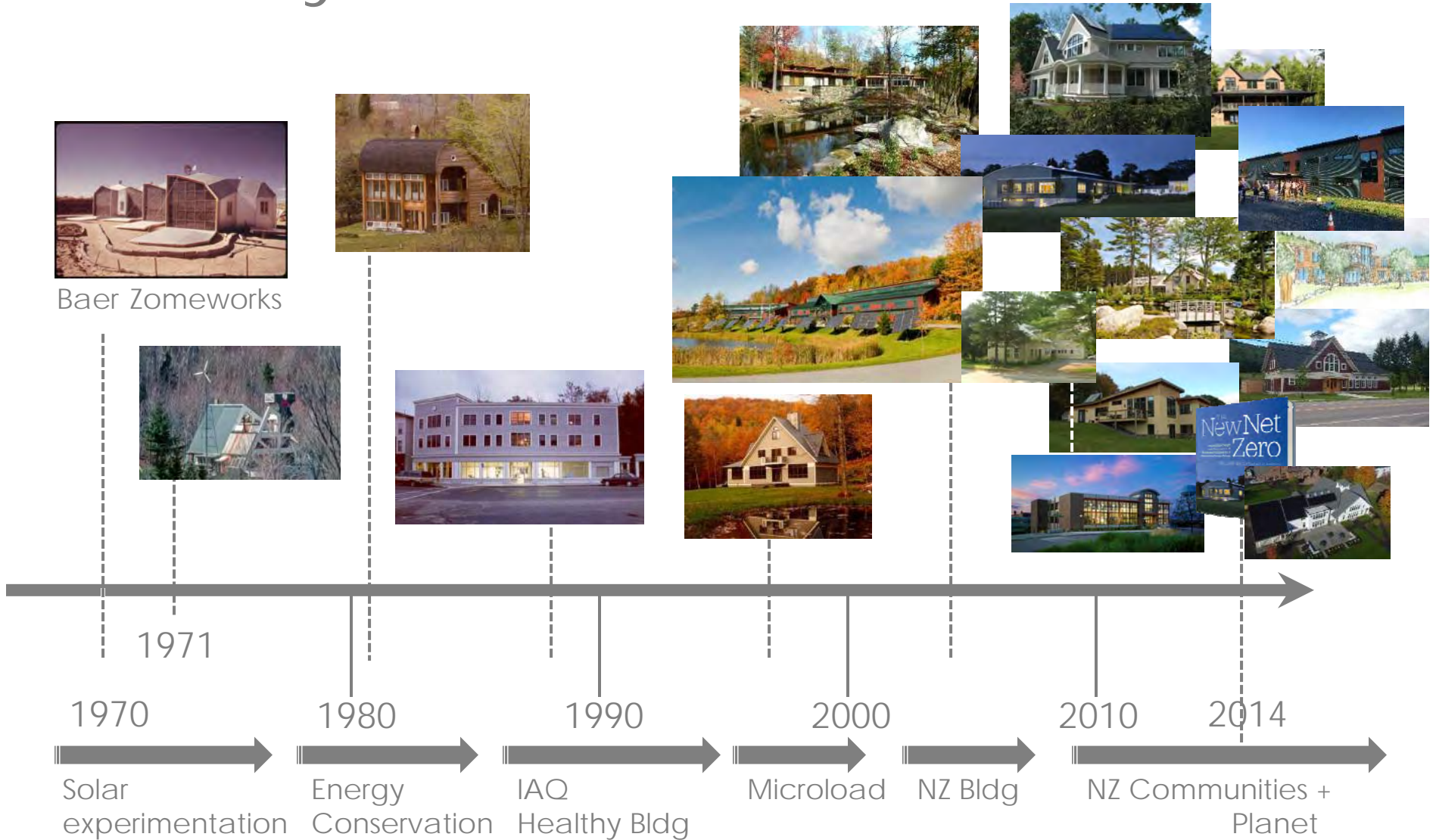


Maclay Architects' Path to Net Zero



Four Approaches to Selling NZ, LBC, . . .

- Environmental Zealotry
- Pleasing Clients
- Collaborate with Clients
- Innovative, Aspirational Collaboration



How do Clients Think?

Client: What do I want anyway?

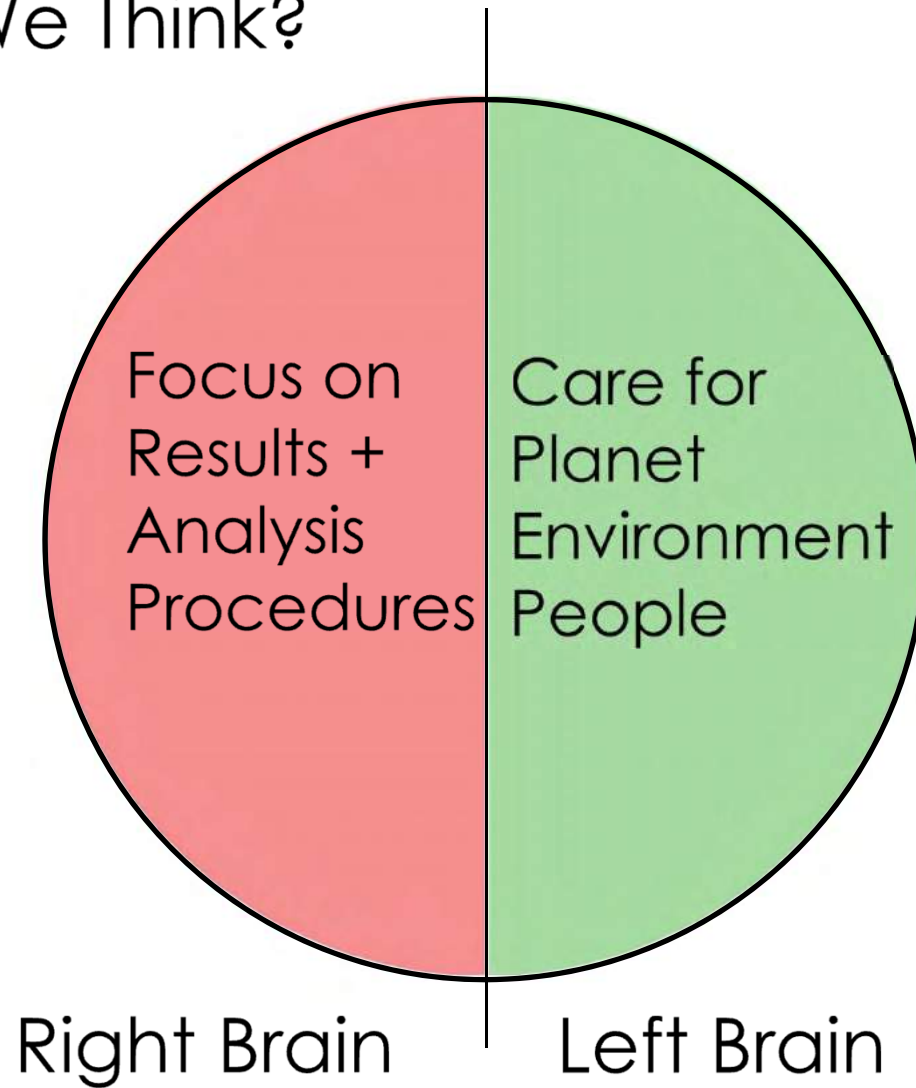


How do Clients Think?

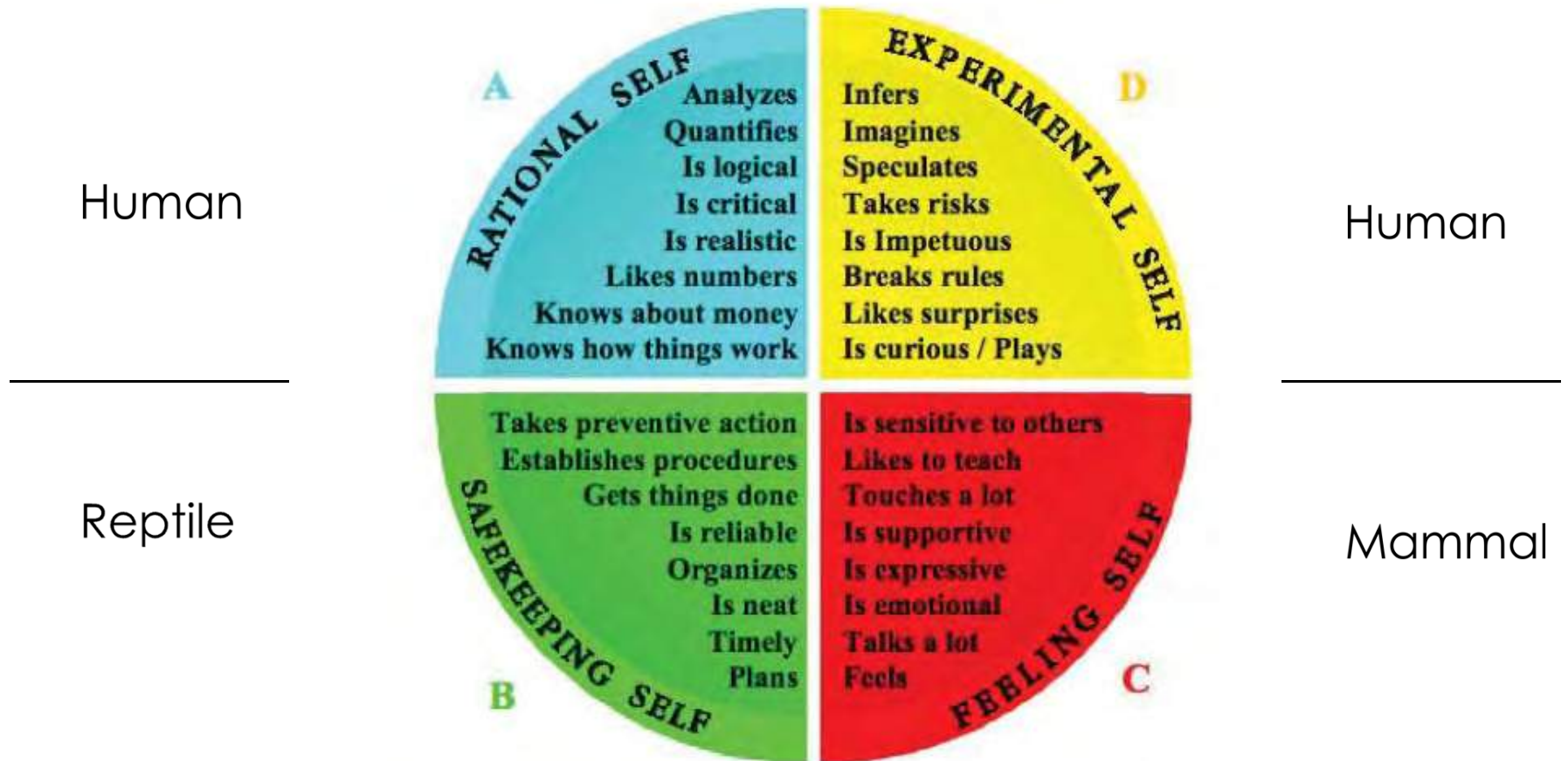
Client:
Concerns +
Purpose



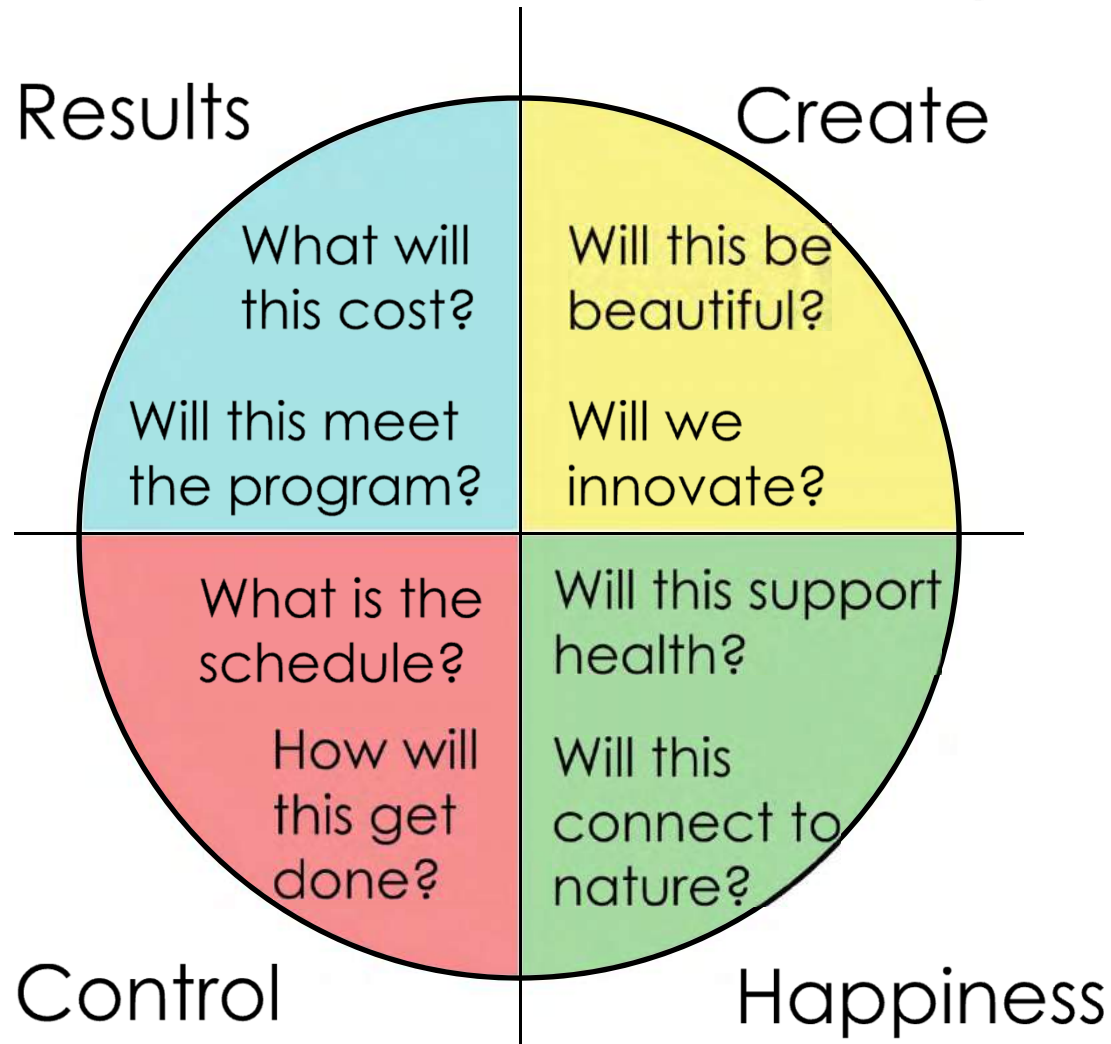
How do We Think?



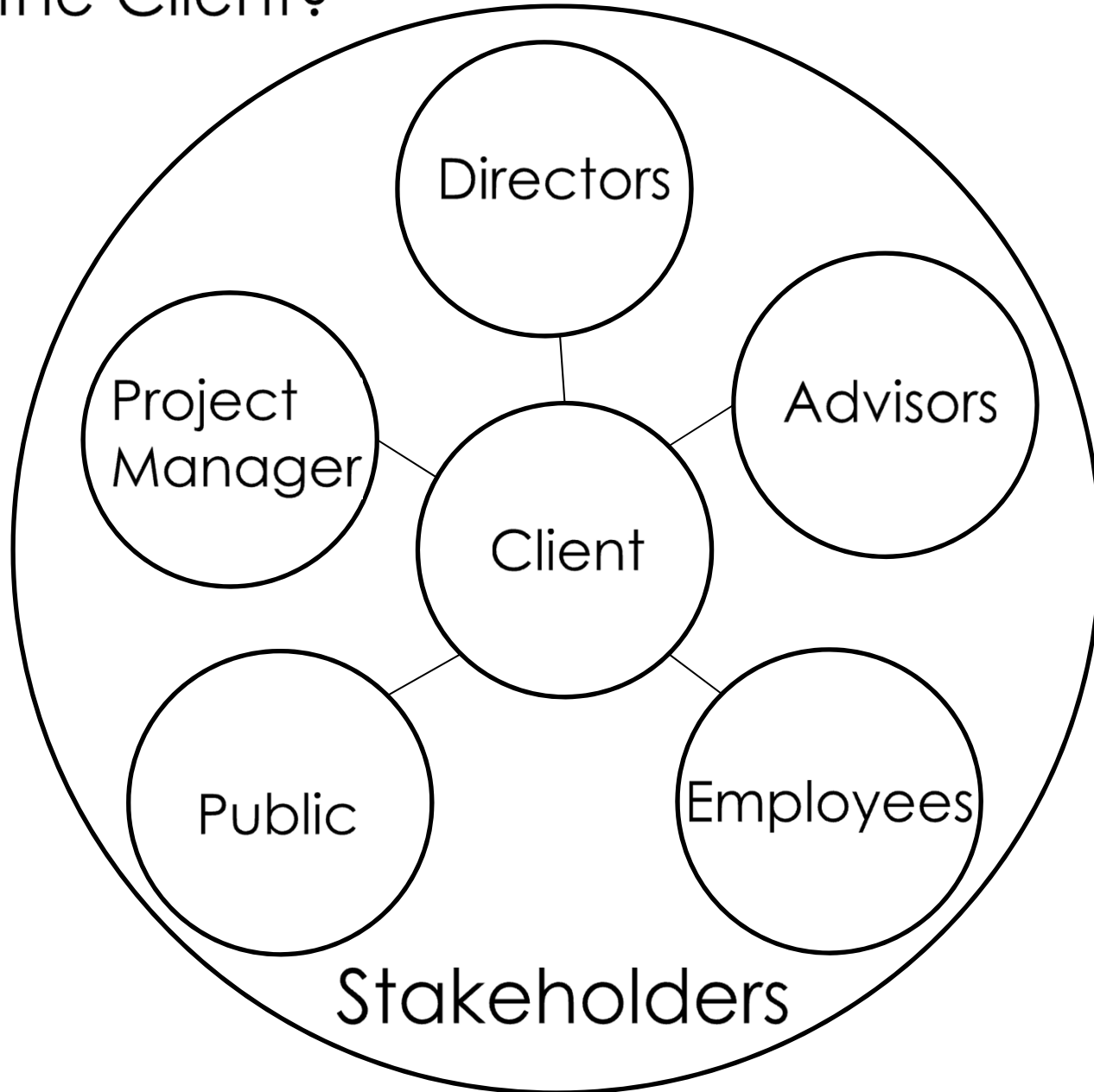
Do We Think in Multiple Ways?



How do **CLIENTS** Think About Building Projects?



Who is the Client?



A Disconnect

Client:
Will this cost
too much?

Architect:
This will save
the world



Design for Reconnect

Architect:
Maybe I should think
about the **entire** client..



<https://archive.org/stream/architectenginee11333sanf/architectenginee11333sanf#page/n136/mode/1up>

Based on "Whole Brain Thinking", Courtesy of: Graceworks Inc. 2009-2016

Single Family Home

- 1,600 sf
- \$16/sf Additional construction costs
- \$14/sf additional solar costs



Financial Analysis – Energy Consumption

INPUTS: Energy Model

CODE	
Heat	19,826
Hot Water	5,000
Cooling	--
Lighting	585
Other Elec	3,878
Total	29,289

NET ZERO READY	
Heat	2,406
Hot Water	2,667
Cooling	--
Lighting	585
Other Elec	3,953
Total	9,611

% ENERGY SAVINGS ABOVE CODE 67%

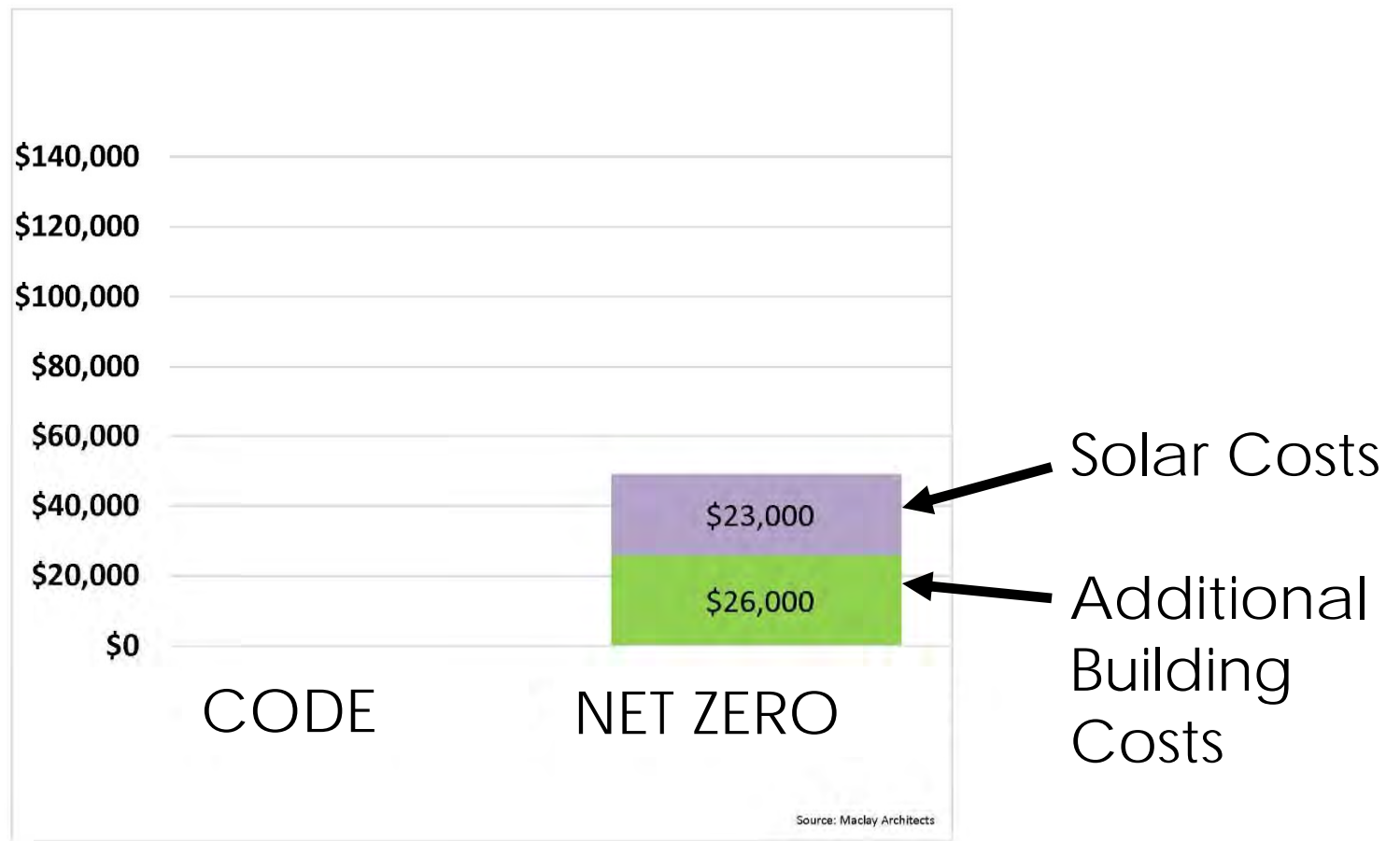
Energy Usage, kWh/yr

Financial Analysis – Financial Assumptions

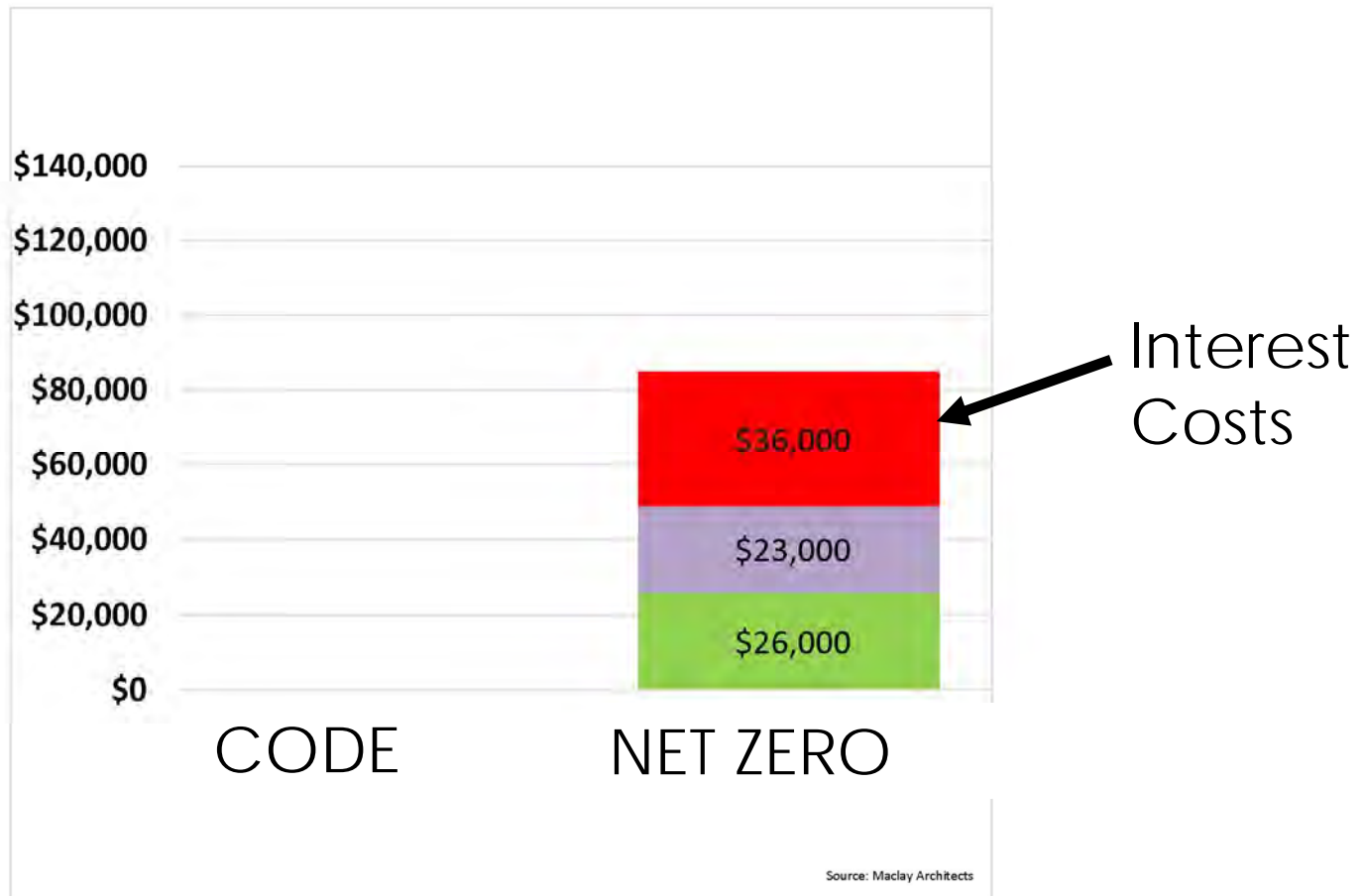
INPUTS

- Interest Rate
- Loan Duration
- Fuel Escalation Rate

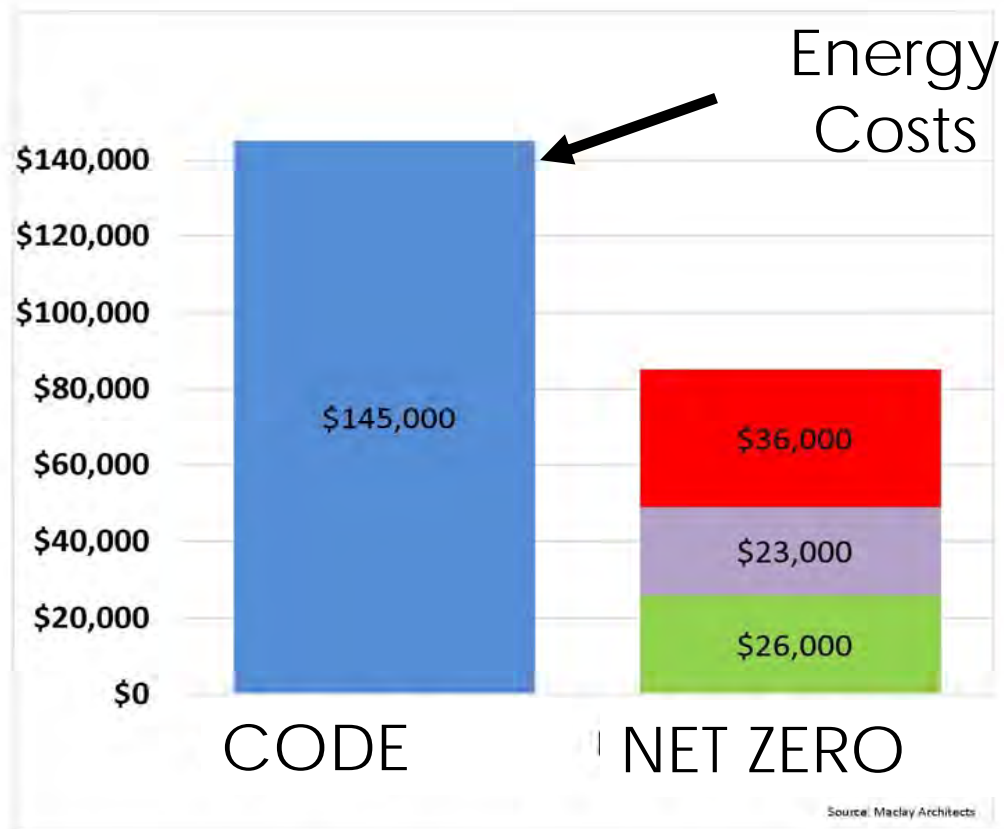
Single Family 30-year Costs



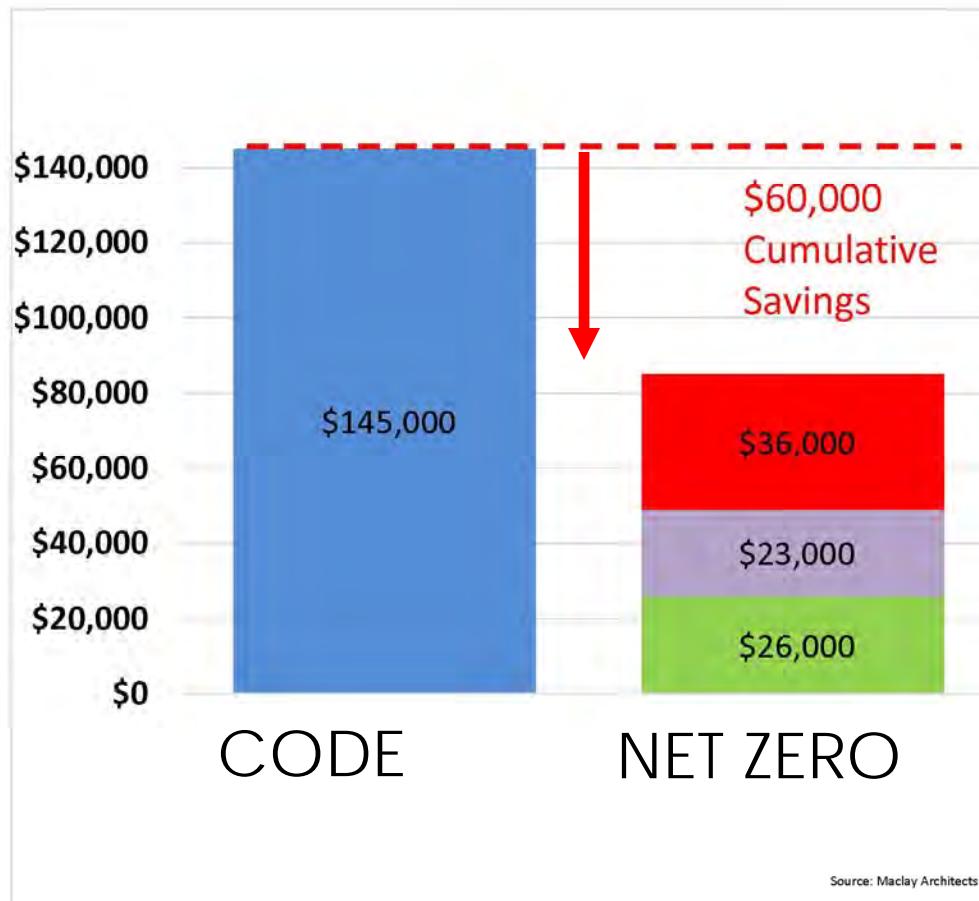
Single Family 30-year Costs



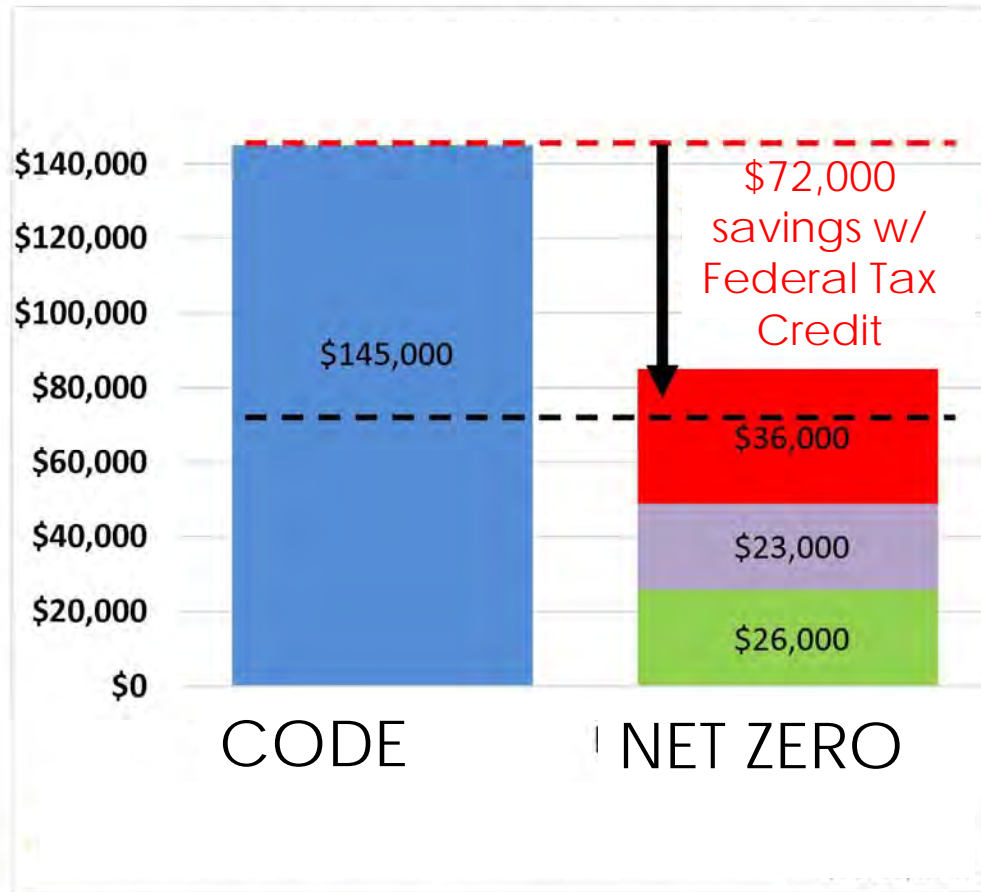
Single Family 30-year Costs



Single Family 30-year Costs

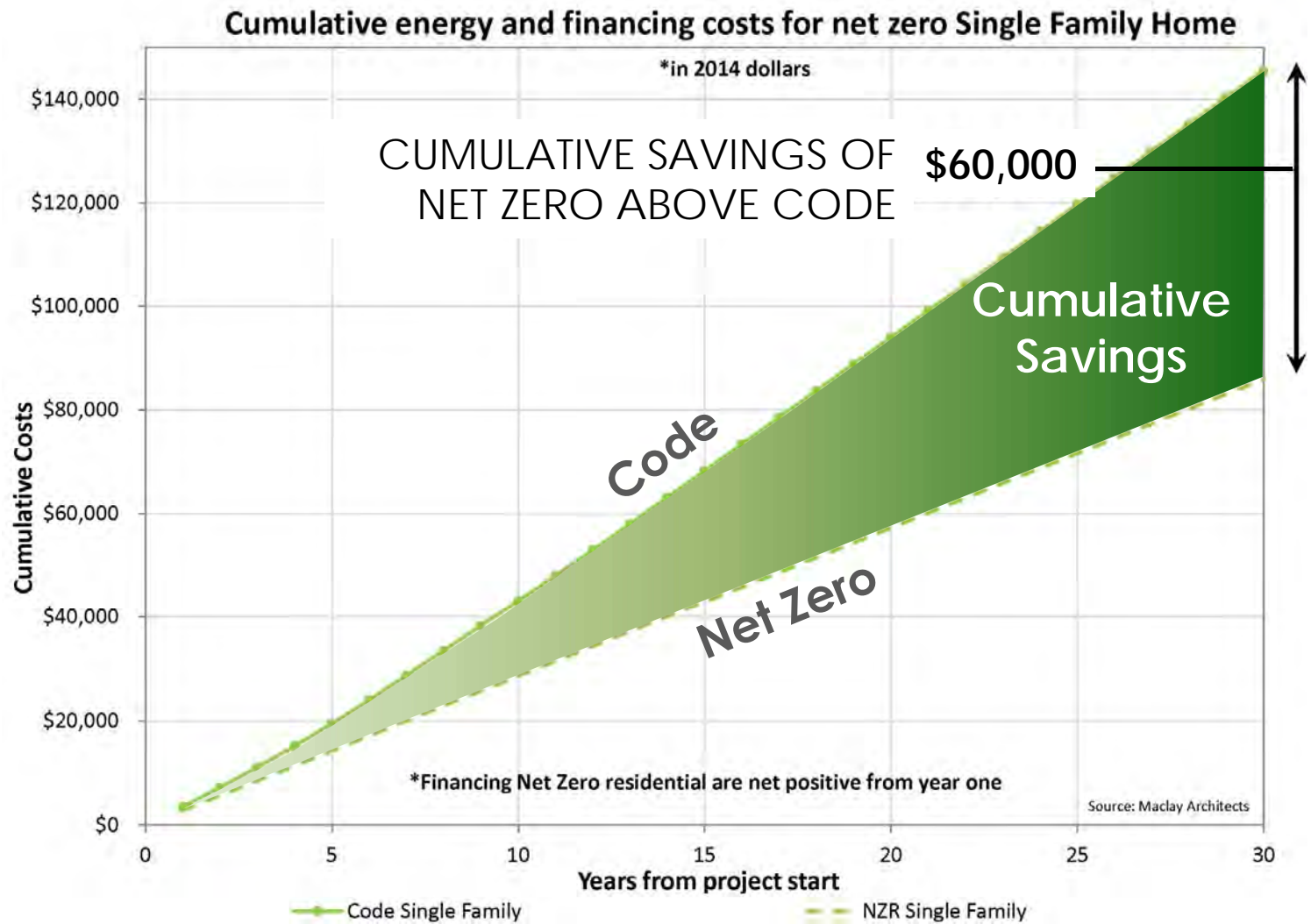


Single Family 30-year Costs



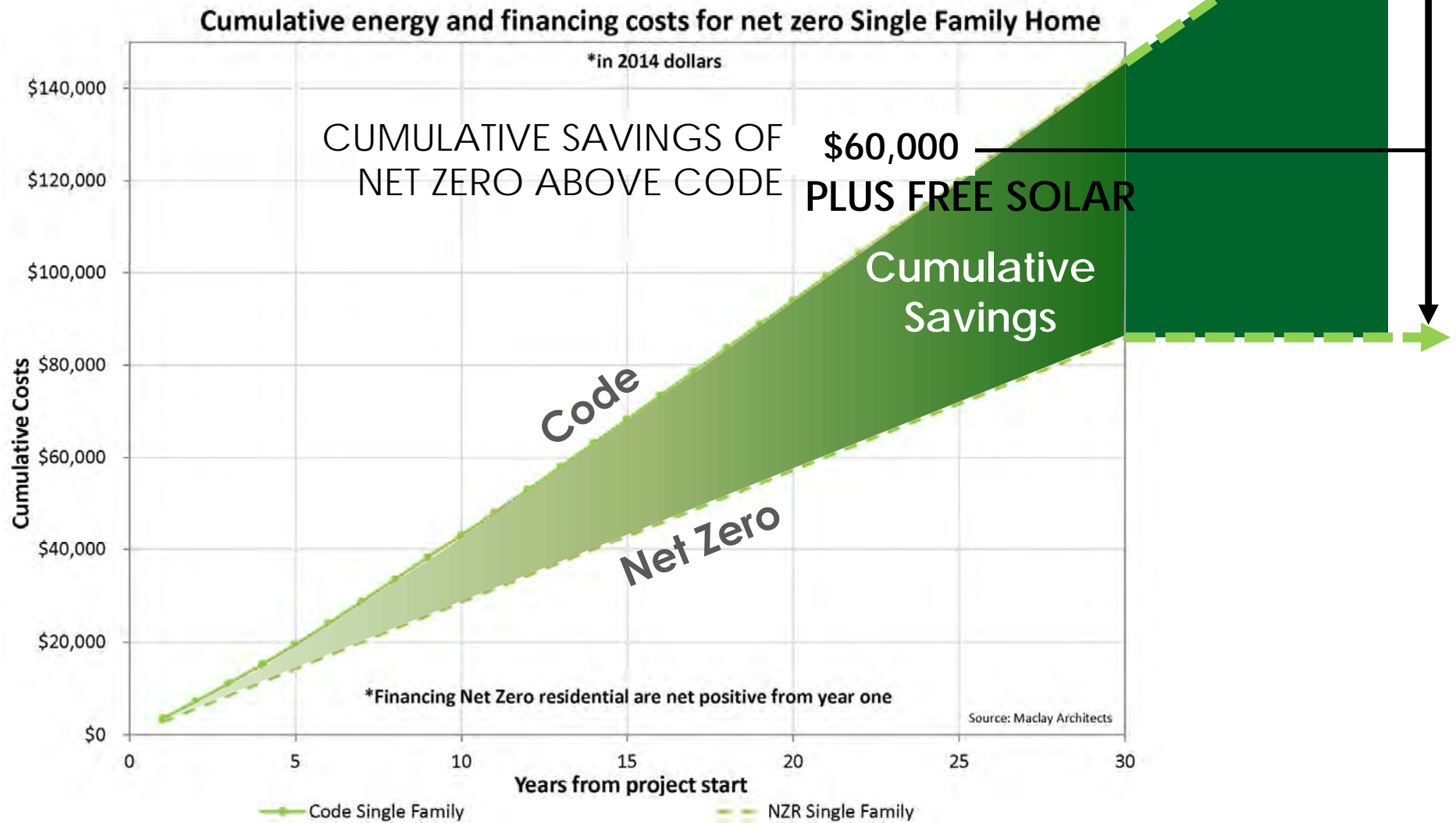
30-Year Cash Flow

- 30-Year savings



30-Year Cash Flow

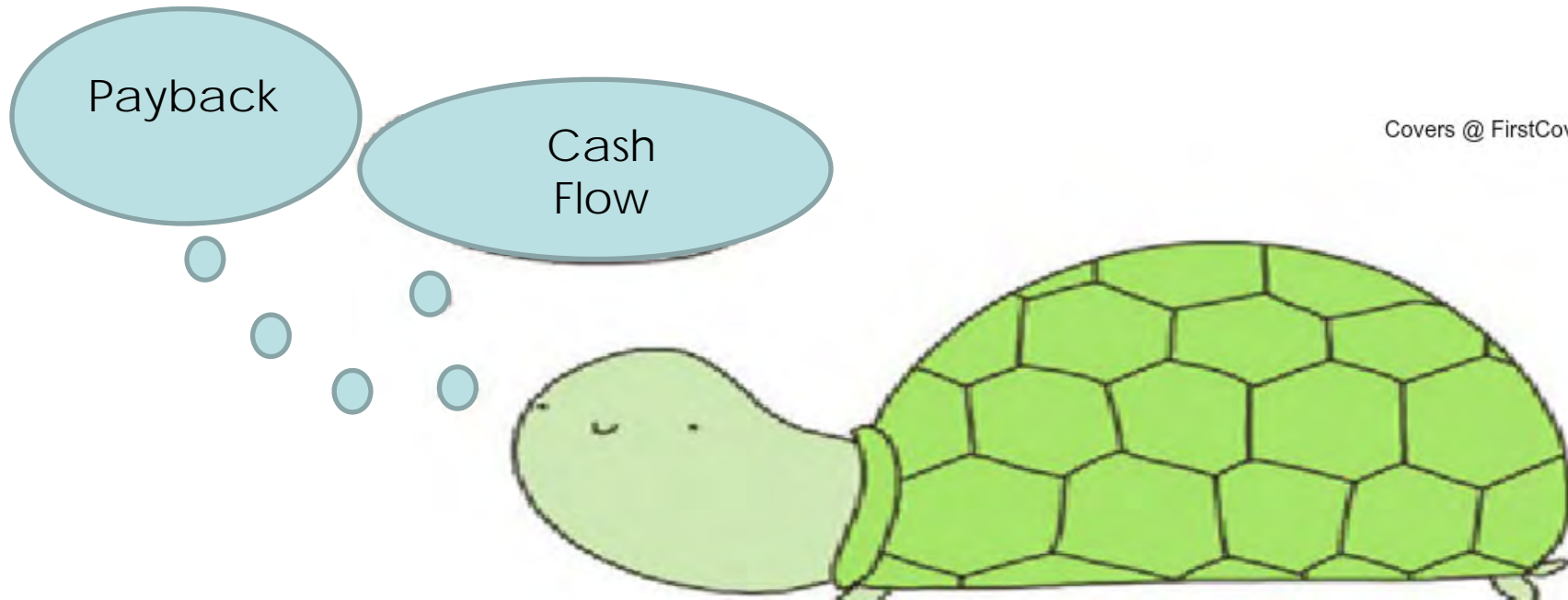
- Savings after 30 years



Cumulative Savings of Net Zero Ready vs Code



Paradigm Shift Payback v. Cash Flow



Covers @ FirstCovers.com



- | | |
|-----------------------------|---------------------|
| GRAPHIC KEY | ENTRANCE KEY |
| ■ NEW CONSTRUCTION | 1. MAIN ENTRANCE |
| ■ EXISTING CONSTRUCTION | 2. SALLY PORT |
| ■ REPLACEMENT PARKING | 3. DOC. ENTRANCE |
| ■ EXISTING PARKING | 4. PAROLE ENTRANCE |
| ■ PROPOSED WALKWAYS | |
| ■ EXISTING WALKWAYS | |
| ■ GRASS | |
| ■ VEGETATION | |
| ■ PROPOSED GEOTHERMAL FIELD | |

Bennington State Office Building

Option 3. Site Plan



New Option Surface Area Reduction:

31% on 5 sides

45% on 6 sides

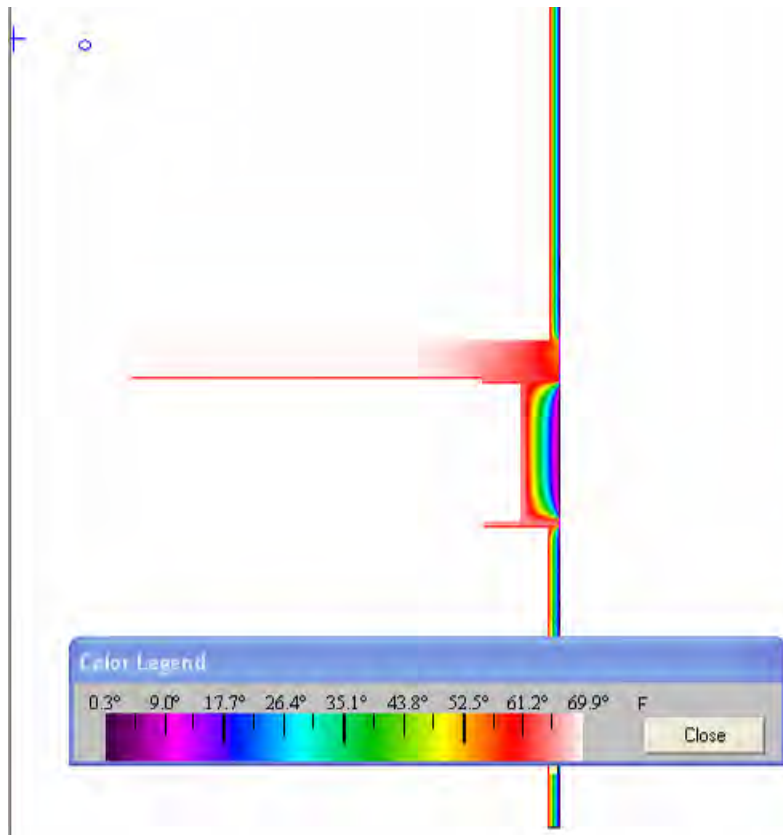
Cost:

No increased cost

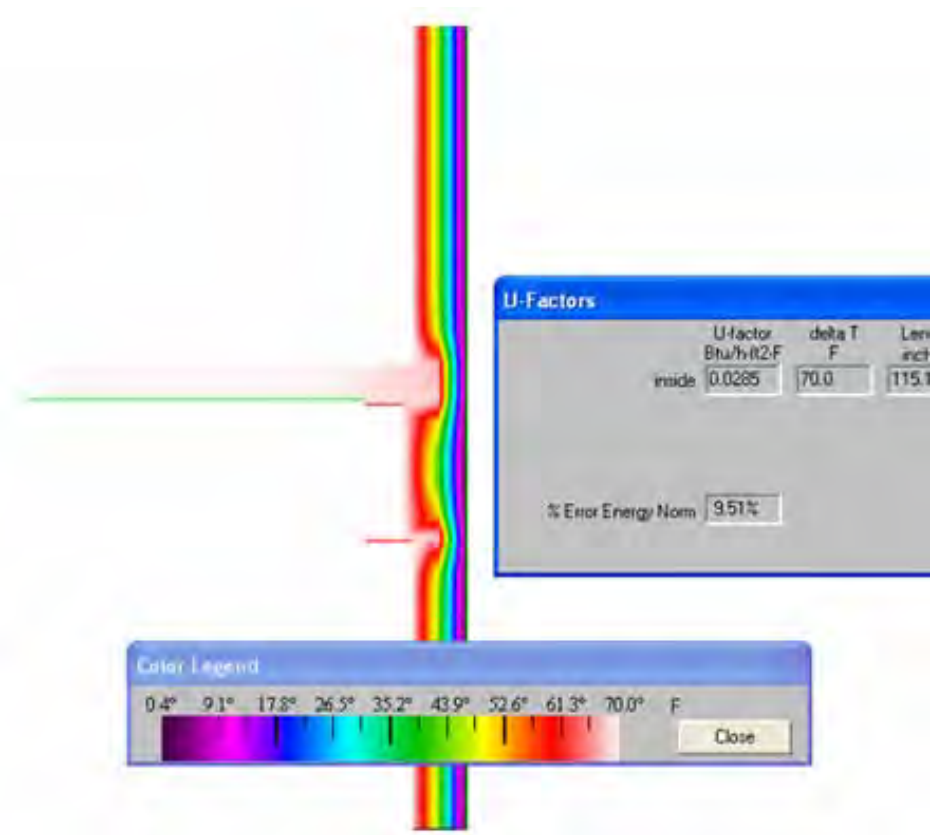
Massing Savings:

Infinite Return on Investment

Thermal diagrams

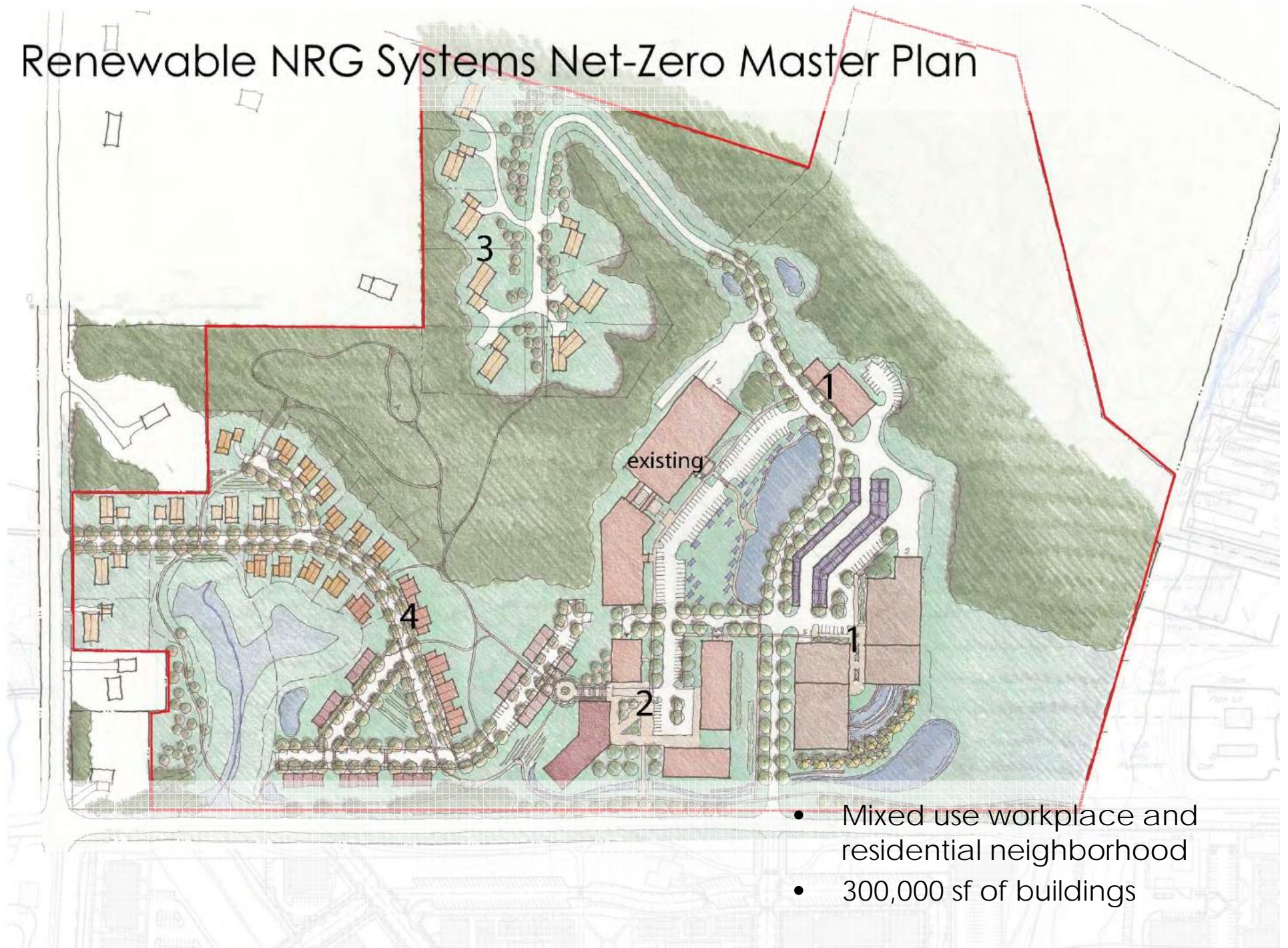


Existing Building Envelope



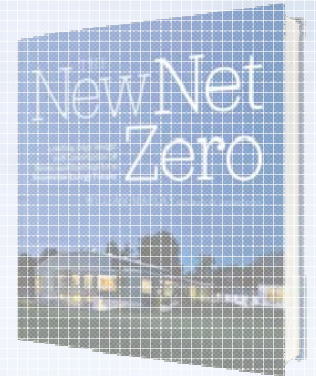
New Building Envelope

Renewable NRG Systems Net-Zero Master Plan



- Mixed use workplace and residential neighborhood
- 300,000 sf of buildings

Lessons



- Speak to Client's "Whole Brain"
- Look for Levers

