

How can we ensure that the multiple benefits of zero carbon buildings (IEQ, low utility bills, climate change mitigation and adaption, etc.) are available to all members of our communities?

Our Vision

All people live with dignity in safe, health and affordable homes within **communities of opportunity**



Housing Development Consortium, Shift Zero, Emerald Cities Seattle **Building for the Future**

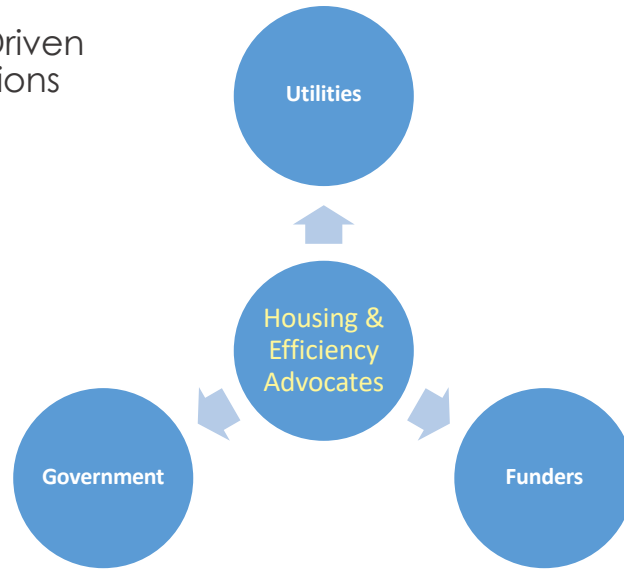
A Housing Community driven program to maximize housing units produced while driving energy use, carbon emissions, water consumption, and storm water runoff toward zero.

Our Vision

All people live with dignity in safe, health and affordable homes within **communities of opportunity**



Community Driven Goals & Solutions

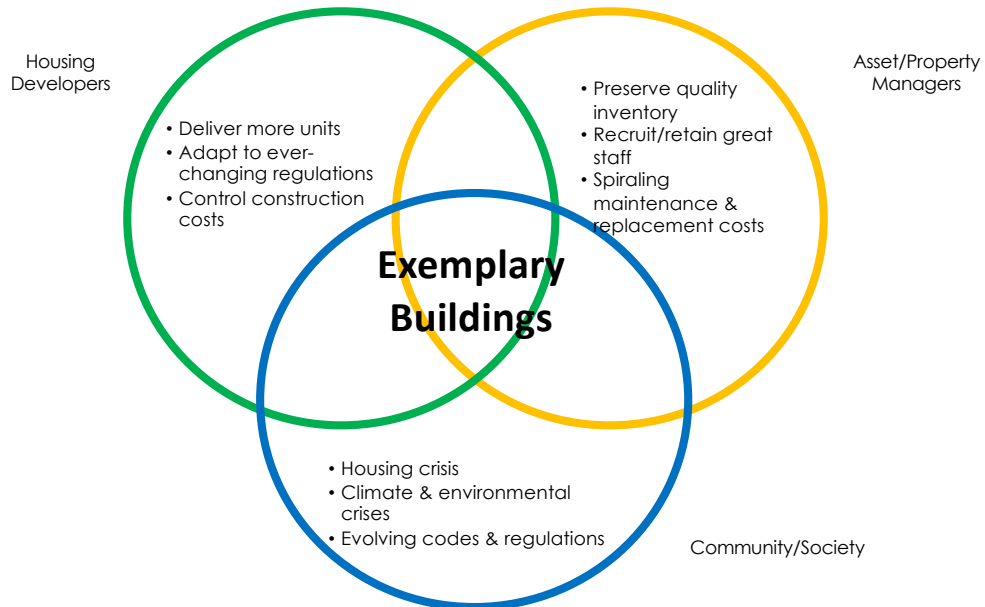


Our Vision

All people live with dignity in safe, health and affordable homes within **communities of opportunity**



Pressures on the System



What do we mean— "Exemplary" ?

An Exemplary Affordable Housing Building:

- ***maximizes housing units produced,***
- offers long-term life-cycle cost benefits,
- and an improved quality of life for residents.

"Ultra-Efficient"?— Cont.

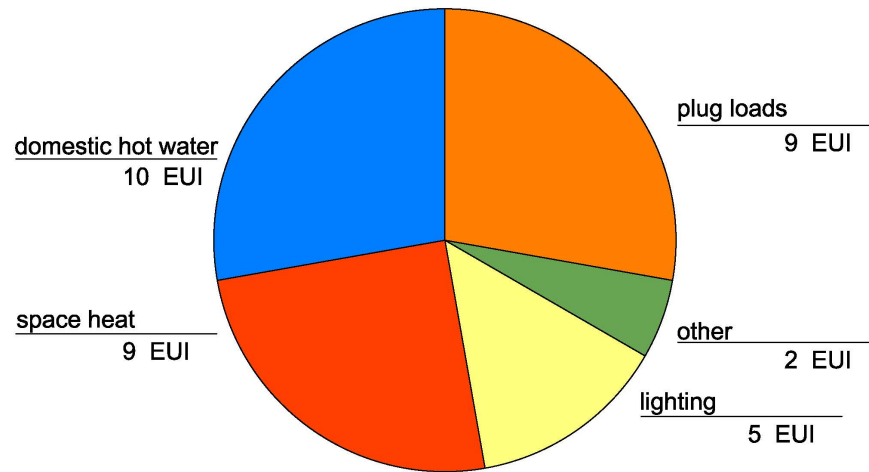
An Exemplary Affordable Housing Building is one in which:

--energy and water consumption, and storm water runoff is reduced;

first through state-of-the-art building design strategies and efficiency measures,

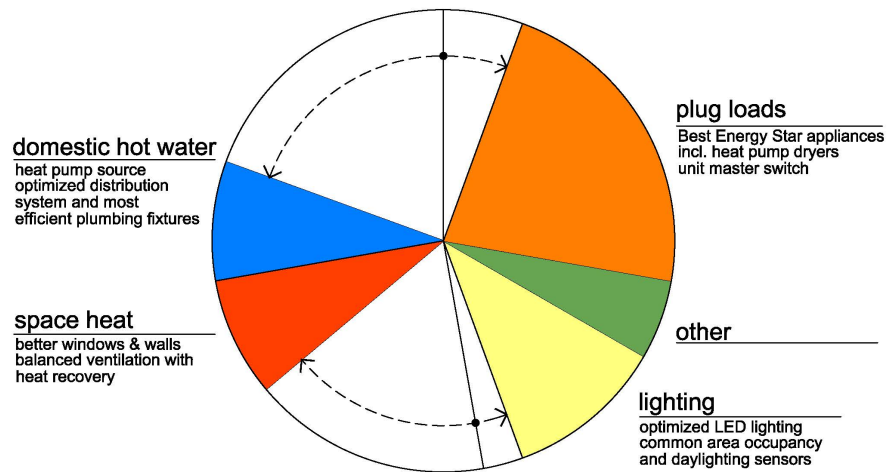
then through on-site renewable energy generation and water capture.

Typical New Affordable Housing Energy Use



ESDS COMPLIANT MULTI-FAMILY BUILDING
annual energy performance - 35 EUI

Exemplary Affordable Housing Energy Use



EXEMPLARY MULTI-FAMILY BUILDING
annual energy performance - 20 EUI

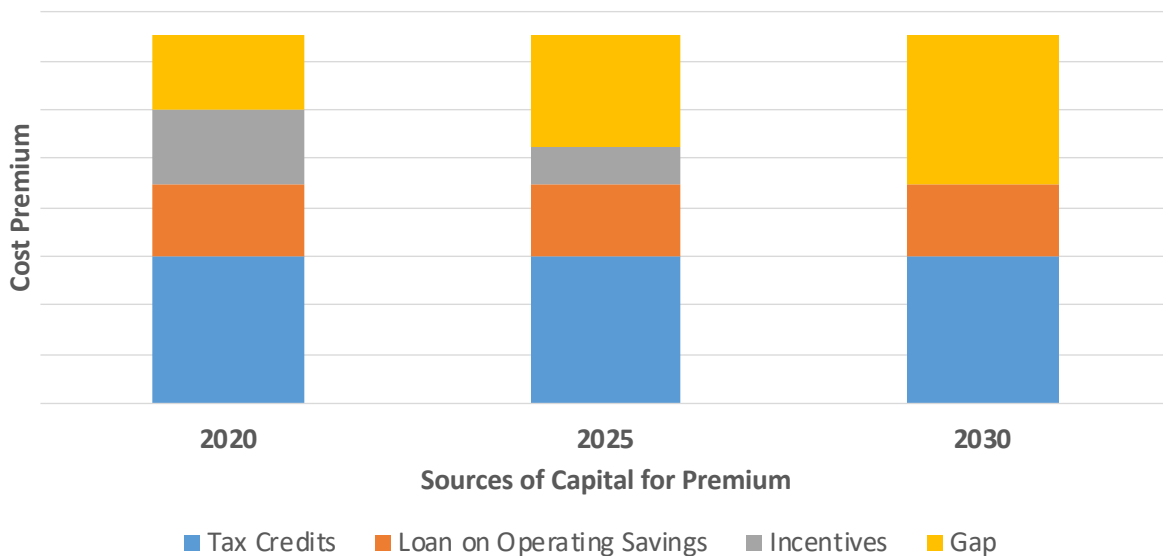
Washington State Goals for the Building Sector

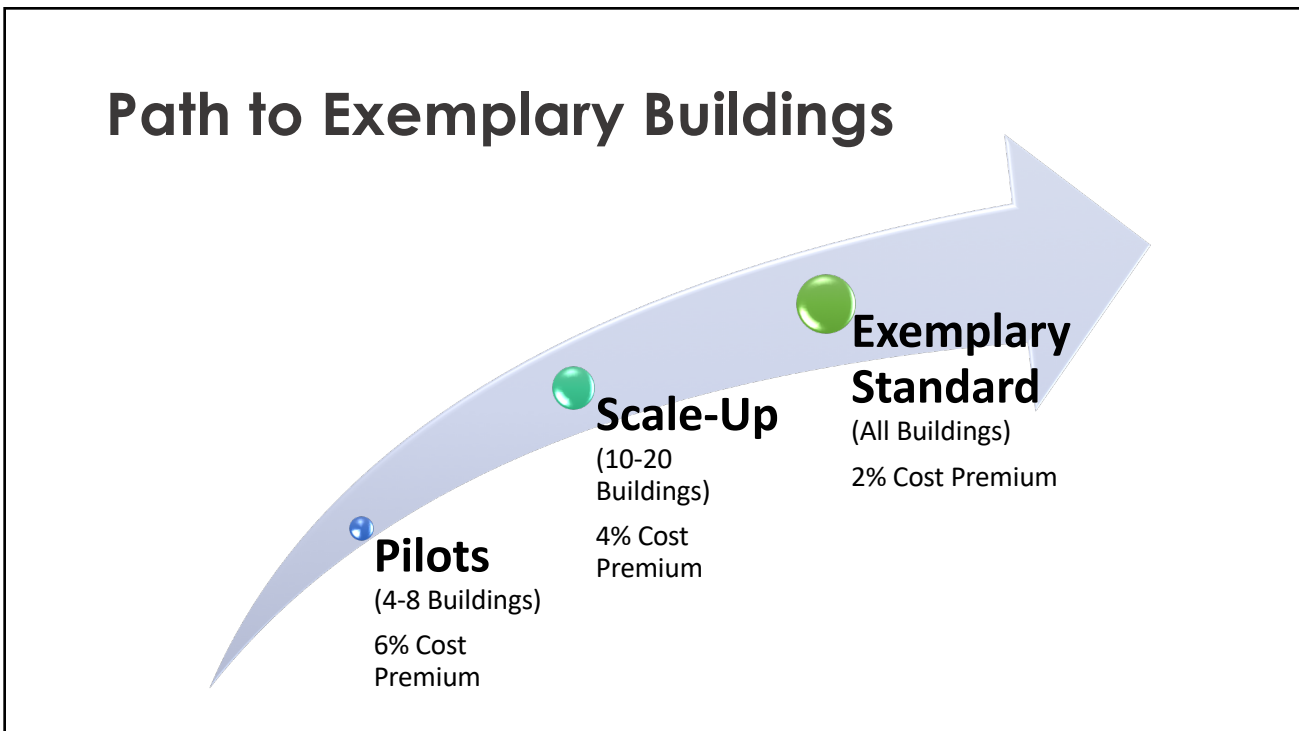
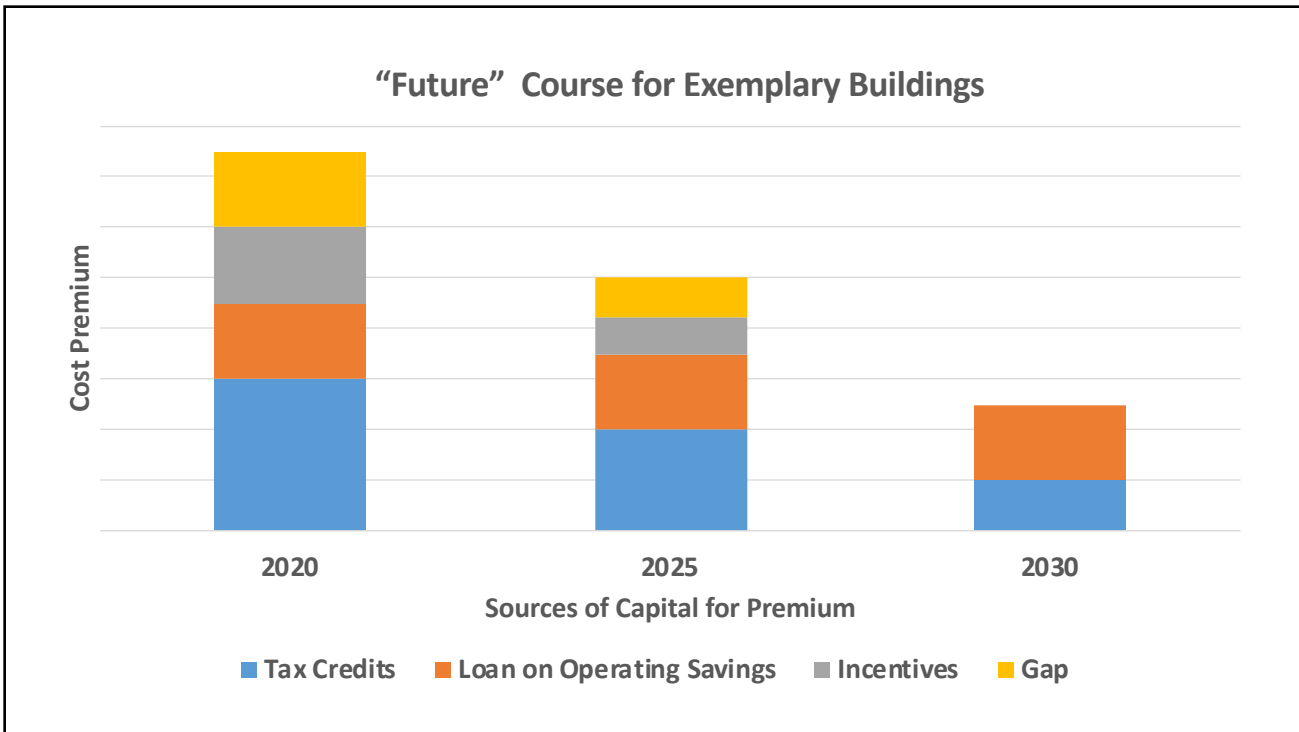
Many organizations and jurisdictions have adopted a range of building performance goals over the past decade that have significantly changed the conversation about energy codes and building energy performance. The primary policy driver for the Washington State Energy Code increases in stringency is the language adopted by the Washington State Legislature, which reads:

*Residential and Nonresidential construction permitted under the **2031 state energy code must achieve a 70 percent reduction** in annual net energy consumption (compared to the 2006 state energy code) (RCW 19.27A.160)*
And—

Construct increasingly efficient homes and buildings that help achieve the broader goal of building zero fossil-fuel greenhouse gas emission homes and buildings by the year 2031 (RCW 19.27A.020)

“Do Nothing” Course for Exemplary Buildings



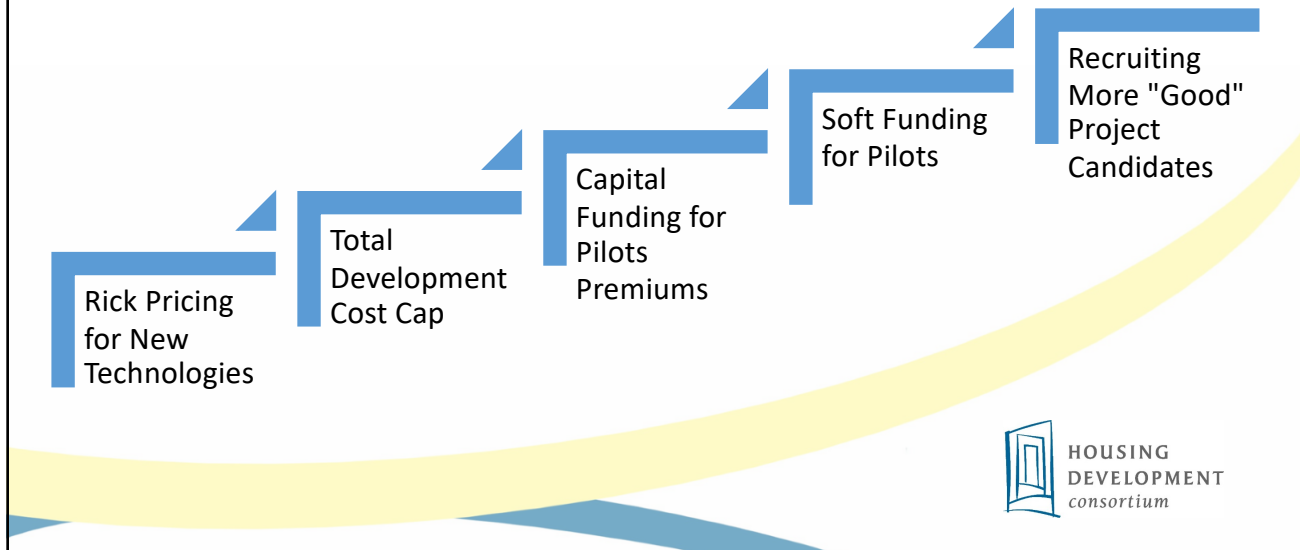


Exemplary Buildings Program		
Pilot Phase 4 Buildings (400 units) in 2019 (part of 20 by 2020 Challenge)	Scale-up Phase 10 (1,000 units) Buildings in 2021-22	Exemplary Standard Phase All Buildings in 2024
Optimize Construction		
Integrated Design - Standardized set of specifications, wall and roof assembly designs. Optimized units. Offsite Construction.	Supply Chain - Volume purchasing across owner/developers to be able to offset some of the incremental cost for upgrades. Ready availability of mechanical, plumbing, window, insulation, and ventilation systems. (Develop supply chain in ramp-up phase)	Labor - Train a robust highly trained, affordable workforce
Sustainable Operations and Maintenance		
Commissioning	Performance-Based Operations Training of building staff maintenance contracts	Monitoring and Verification
Funding and Financing – Identify funding sources that will cover the premium to build to exemplary standards.		
Optimize current funding sources.	New Grants/Incentives <ul style="list-style-type: none"> • Utilities • Government • Philanthropy 	New Financing <ul style="list-style-type: none"> • Government Supported • Private Capital • Financial Institutions
Policies & Code - Evolve or change policies to accelerate our move toward exemplary buildings.		
Design Review Board – limit expensive cost drivers, present Exemplary Building Program as a “pre-approved standard”, Climate Change Imperative,		Adjust Cost and Funding Limits – to account for exemplary buildings and long term operating savings that result

Program Funding

	Pilot Phase	Scale-Up Phase	Exemplary Phase
Resident Units	100	100	100
Base Project Cost	\$25,000,000	\$25,000,000	\$25,000,000
Hard Cost Premium %	6%	4%	2%
Hard Cost Premium (6%)	\$1,500,000	\$1,000,000	\$500,000
Soft Coat Premium %	1%	.5%	0%
Soft Cost Premium	\$250,000	\$125,000	\$0
Financed Operating Savings (10 years at 2.5%)	(\$250,000)	(\$250,000)	(\$250,000)
Net Funding Needs	\$1,500,000 <ul style="list-style-type: none"> • Tax Credits • Foundations • Utility Incentives & Grants • Special Grant & Gov't Funding 	\$875,000 <ul style="list-style-type: none"> • Tax Credits • Foundations • Utility Incentives & Grants • Special Grant & Gov't Funding 	\$250,000 <ul style="list-style-type: none"> • Tax Credits

Hurdles:



How are we doing?

- ✓ Utility Funding for Efficiency
- ✓ Utility Funding for Renewable Energy
- ✓ Demonstration Projects Recruited
- ✓ Special State Funding for Pilots
- ✓ Philanthropic Funding for Pilots
- ✓ Support from Manufacturers
- ✓ Support from General Contractors
- ✓ First Project Breaks Ground in January 2020

Our Vision

All people live with dignity in safe, health and affordable homes within **communities of opportunity**



What has us excited? Cost Reduction Strategies

- We have organized 3 groups to work on cost reductions and are getting lots of support and interest. They are:
 - Central Heat Pump Hot Water Systems
 - Optimized (cost of performance) building envelope
 - Balanced Ventilation with Heat Recovery

Our Vision

All people live with dignity in safe, health and affordable homes
within **communities of opportunity**



Thank you.

