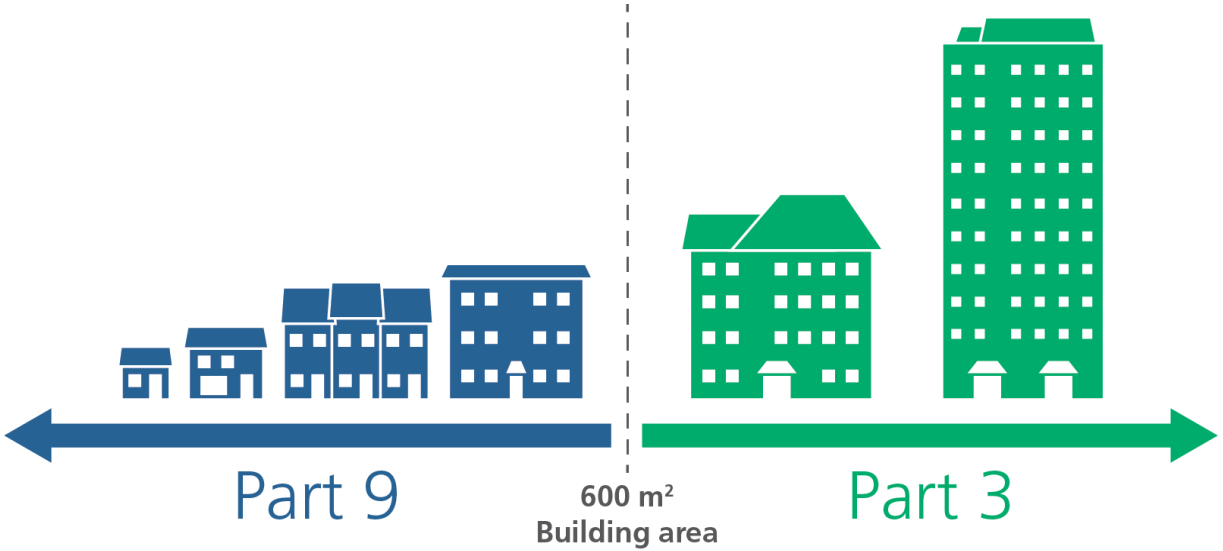
Part 3 Buildings

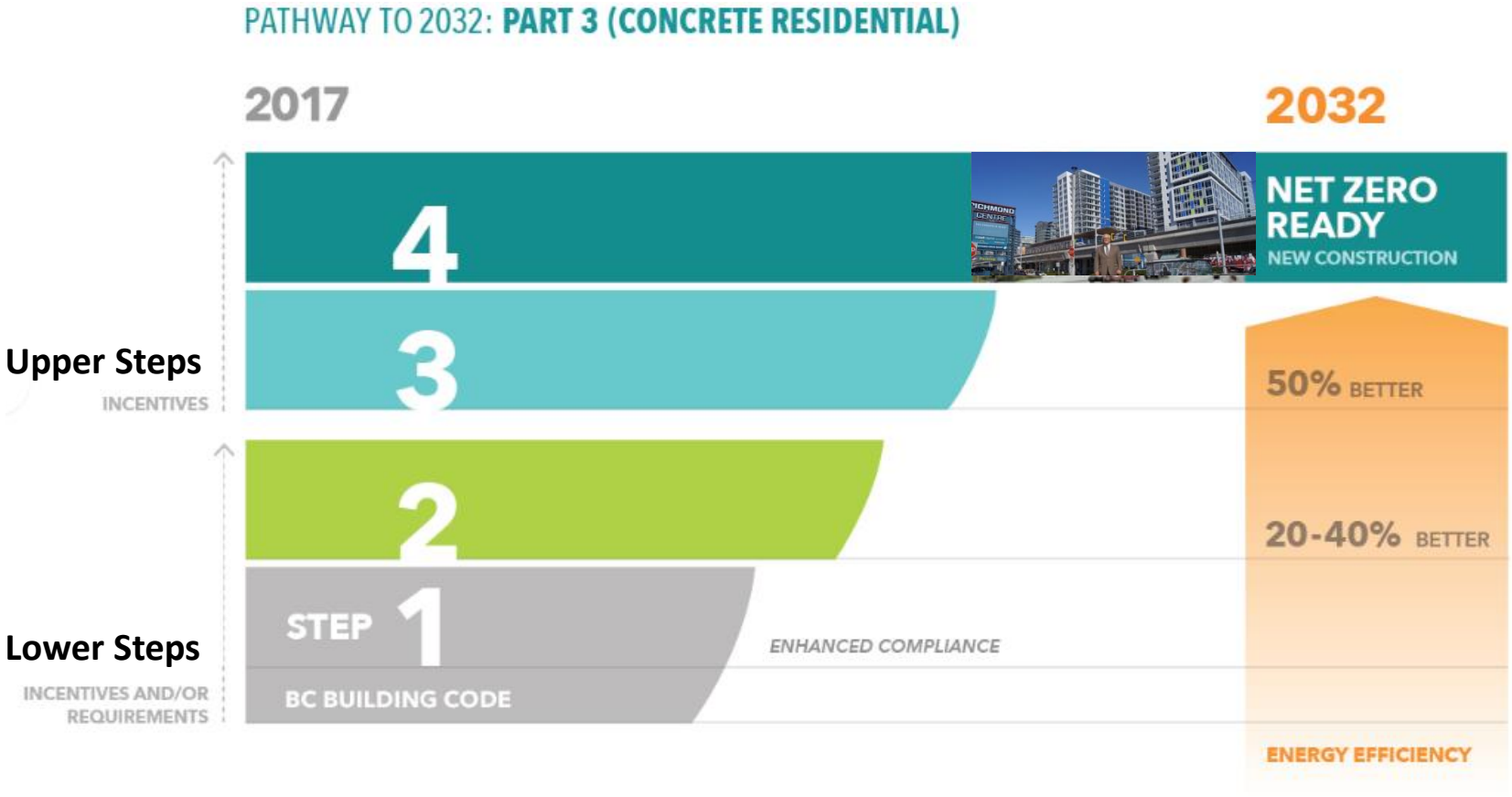
Part 3 vs. Part 9

- **Part 3 – Large and complex buildings**. These buildings are four storeys and taller and greater than 600 square metres in building area or “footprint” (e.g. larger apartment buildings, condos, shopping malls, office buildings, hospitals, care facilities, schools, churches, theatres, and restaurants).
- **Part 9 – Houses and small buildings**. These buildings are three storeys or less and have a building area or “footprint” no more than 600 square metres (approximately 6,500 square feet). (e.g. single-family, duplexes, townhomes, small apartment buildings, and small stores, offices, and industrial shops).



Part 3 Residential – Wood Frame

Part 3 Residential - Concrete



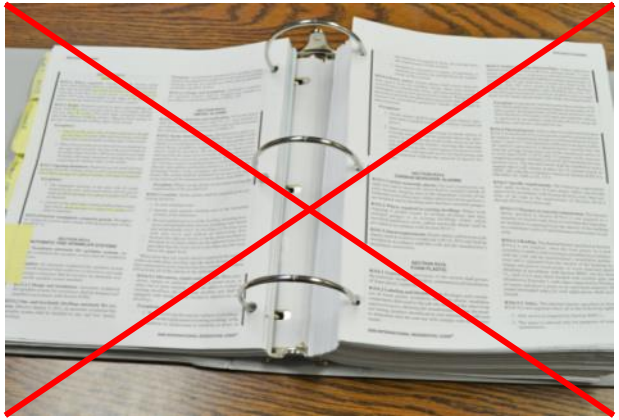
Performance Compliance

Energy Modeling

- Model performance on key metrics; must achieve min. performance
- Model outputs signed & sealed by registered pro.

Air-Tightness Testing

- No minimum performance standard
- Energy models must include tested value



No Prescriptive Requirements

Residential Occupancies - Requirements

Step	Building energy model	Airtightness Requirement		Building Equipment and Systems	Building Envelope
		Airtightness Test	Performance Requirement	Total Energy Use Intensity (TEUI) *kWh/m²·year*	thermal energy demand intensity (TEDI) *kWh/m²·year*
1	✓	✓	report score	Conform to Part 8 of NECB	Conform to Part 8 of NECB
2	✓	✓	report score	≤ 130	≤ 45
3	✓	✓	report score	≤ 120	≤ 30
4	✓	✓	report score	≤ 100	≤ 15

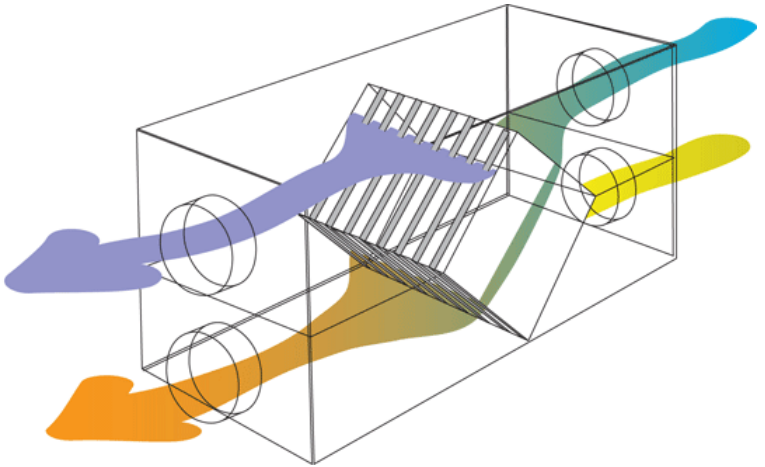
Business and Personal Services or Mercantile Occupancies

Step	Building energy model	Airtightness Requirement		Building Equipment and Systems	Building Envelope
		Airtightness Test	Performance Requirement	Total Energy Use Intensity (TEUI) *kWh/m²·year*	thermal energy demand intensity (TEDI) *kWh/m²·year*
1	✓	✓	report score	Conform to Part 8 of NECB	Conform to Part 8 of NECB
2	✓	✓	report score	≤ 170	≤ 30
3	✓	✓	report score	≤ 120	≤ 20

Ventilation Requirements in Energy Step Code

BCBC 6.2.2. - Ventilation

- “For suites in buildings subject to the [BC Energy Step Code] … outdoor air… shall be supplied to each suite by mechanical ventilation through ducting.”
- “The indirect supply of required outdoor ventilation air to normally occupied spaces through corridor pressurization or other indirect systems is not permitted.”



Richmond's Regime – For Stakeholder Consultation

Building type	Current approximate Performance Level	December 15, 2017	~ 2021	~ 2025
Part 3 residential ≤ 6 story	Within City Centre: ~Step 2 Outside CC: BC Building Code	Step 3	*Step 3 or 4*	*Step 4*
Part 3 residential >6 story	Within City Centre: ~Step 2 Outside CC: BC Building Code	Step 2	*Step 3*	*Step 4*
Part 3 commercial	Within City Centre: ~Step 2 Outside CC: BC Building Code	Step 2	*Step 3*	*Step 3*
Part 3 industrial	BC Building Code	BC Building Code	*?*	*?*
Part 3 all renovations / additions	BC Building Code	BC Building Code	*?*	*?*

Richmond Costing Study Results

Building	Step	Scenario	Envlp. $/SQFT	Mech. $/SQFT	Construction Cost vs. BCBC	Modeled Values		Step Code Values	
						TEUI (kWh/m2/yr)	TEDI (kWh/m2/yr)	TEUI (kWh/m2/yr)	TEDI (kWh/m2/yr)
High Rise MURB	BCBC	Natural Gas	$35	$12	**NA**	170	55	N/A	N/A
	Step 2	Electric Baseboard	$36	$9	**-0.7%**	120	32	130	45
		Natural Gas	$36	$13	**1.1%**				
		DES Connection	$36	$11	**-0.2%**				
		ASHP	$36	$14	**1.3%**				
Low Rise MURB	BCBC	Natural Gas	$9	$12	**NA**	130	50	N/A	N/A
	Step 3	Electric Baseboard	$9	$9	**-1.0%**	100	20	120	30
		Natural Gas	$9	$13	**0.8%**				
		DES Connection	$9	$11	**-0.2%**				
		ASHP	$9	$14	**1.1%**				
Office	BCBC	Boiler/Chiller	$18	$25	**NA**	140	40	N/A	N/A
	Step 2	ASHP/VRF	$19	$23	**-0.5%**	100	27	170	30
		DES Connection	$19	$25	**0.2%**				

Draft Compliance Process Map (Part 3)

REQUIREMENT	REZONING (OR DEVELOPMENT PERMIT WHERE REZONING NOT REQUIRED)		BUILDING PERMIT		OCCUPANCY	
	DOCUMENT SUBMISSION	CITY REVIEW	DOCUMENT SUBMISSION	CITY REVIEW	DOCUMENT SUBMISSION	CITY REVIEW
ENERGY & CARBON TARGETS	Preliminary energy model Summary page detailing performance against targets	✓ Are building EUI's less than specified maximums?	"Sealed" worksheet that confirms an Engineer has modelled the building and that it conforms to policy Final Design energy model summary page detailing performance against targets	✓ Has the worksheet been received? ✓ Are building EUI's less than specified maximums?	"Sealed" Final Energy Model highlighting changes between "Design" and Final" model	✓ Are building EUI's less than specified maximums?
AIR TIGHTNESS TESTING	Secure commitment to conduct an air tightness test	✓ Has the commitment been received?	Air Tightness Testing Plan Proof that an air tightness testing contractor has been retained	✓ Has a plan been submitted? ✓ Has a contractor been retained?	Submission of an Air Tightness Testing Report	✓ Has the Report been completed?
ENERGY BENCHMARKING					Proof that an ENERGY STAR® Portfolio Manager account has been created. Proof that the City has been named as a "Reviewer" Proof that utilities have been linked to the account.	✓ Has an account been created? ✓ Has the city been named as a "reviewer"? ✓ Have utilities been linked to the account?

Opportunities for Input Include…

TBA, 2017	**Stakeholder Workshop** re: implementation options for **Part 3** Energy Step Code
September 2017	Update to **UDI Liaison Committee**
Early fall, 2017	Workshop – review of draft recommendations to Council re: implementation of Energy Step Code.

Thank You!

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