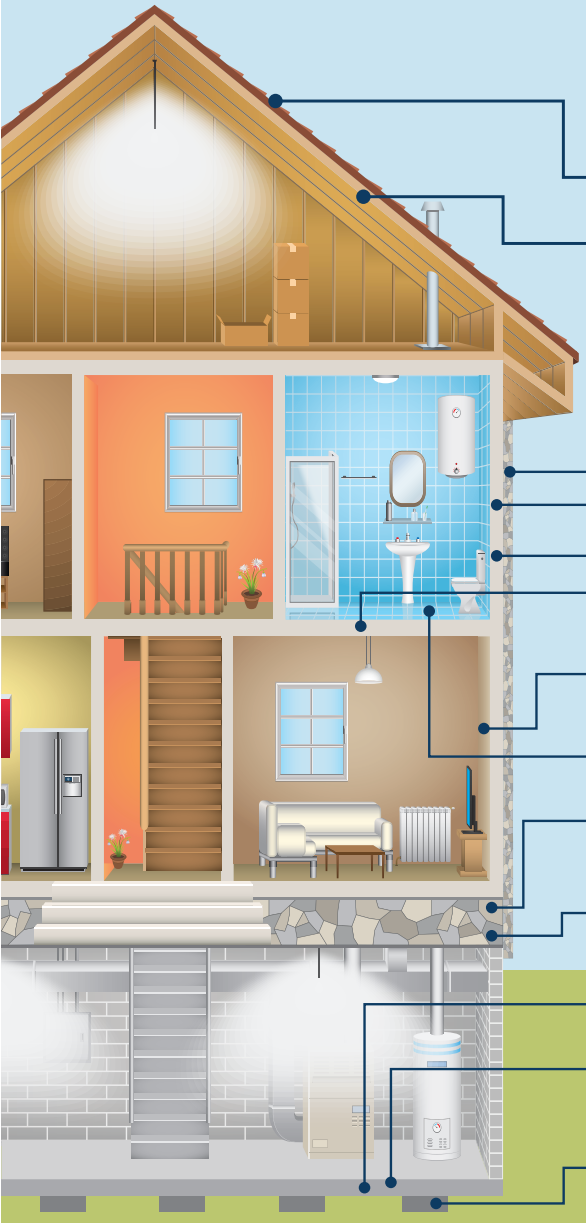
RMI

HomebuildersCAN
CARBON ACTION NETWORK

How Simple Material Substitutions Can Reduce Embodied Carbon

Using fewer materials and selecting them wisely can dramatically reduce a home's embodied carbon, often without raising costs. RMI research shows that home builders can achieve 30 to 50 percent reductions in carbon emissions with commercially available, affordable, and code-compliant materials--and by targeting just a few key categories: concrete, insulation, cladding, and interior surfaces.



	HIGH EMBODIED CARBON 43,580 – 77,520 (kg CO_2e)	REDUCED EMBODIED CARBON 720 – 18,400 (kg CO_2e)
ROOFING	Aluminum panels: 3,700 Steel panels: 2,750	Asphalt shingles: 700 Clay tiles: 680
ROOF INSULATION (@ R60)	Spray foam (HFC): 18,400 Spray foam (HFO): 5,800	Fiberglass: 1,400 Cellulose: -1,400
CLADDING	Brick: 12,200 Steel panels: 4,700	Vinyl: 1,400 Engineered wood: 720
WALL INSULATION (CAVITY) R-20	Spray foam (HFC): 12,000 Mineral wool: 2,370	Fiberglass: 610 Cellulose: -2,250
WALL INSULATION (CONTINUOUS) R-5	XPS foam (no HFC): 1,850 Mineral wool board: 1,260	EPS foam: 750 Wood fiberboard: -1,710
FLOOR FRAMING	Open web steel: 3,170	Wood I-joist: 660
WALL BOARD	Drywall, highest-in-class (1/2"): 1,380	Drywall, lowest-in-class (1/2"): 420
FLOORING	Tile: 3,260 Vinyl: 2,170	Cork: 170 Linoleum: 110
FOUNDATION WALLS (8")	Concrete (typical): 9,370	Concrete (high SCM): 7,360 Treated wood: 1,320
FOUNDATION WALL INSULATION @ R-10	XPS foam (no HFC): 2,170 Mineral wool board: 830	Wood fiberboard: -2,010 Cork board: -2,110
SLABS	Concrete (typical): 5,060	Concrete (high SCM): 3,970 Wood slab: 1,310
SUB-SLAB INSULATION @ R-10	XPS foam (no HFC): 1,410 Mineral wool board: 1,170	Foam glass aggregate: 180
FOOTINGS	Concrete (typical): 3,550	Concrete (high SCM): 2,790

LEARN MORE

Does your company want to get involved in HomebuildersCAN?
Visit **rmi.org/homebuildersCAN** to learn more.

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HomebuildersCAN is a supportive Carbon Action Network initiative for builders to learn about embodied carbon and provide the industry with a consistent approach to incorporating embodied carbon into decarbonization stratagies. Embodied carbon and scope 3 emissions are suddenly on everyone's radar, from regulators to investors to home buyers. This program aims to help homebuilders take the leading role in understanding, measuring, reporting, and acting strategically to adopt and scale profitable, low-embodied carbon building practices. Developed by RMI with an industry stakeholder group, HomebuildersCAN will assist members in three key areas:

Increase performance on embodied emissions from new homes and share successes with stakeholders

Advocate for alignment across the sector, including: regulators, ESG reports, lenders, and energy efficiency programs

Adopt and scale profitable climate-smart building practices

JOIN HOMEBUILDERSCAN

Does your company want to get involved in HomebuildersCAN? Sign up today!

For more information or to discuss supporting HomebuildersCAN, please contact: **homebuildersCAN@rmi.org**

KEY TAKEAWAYS

SIGNIFICANT OPPORTUNITY

There is a significant opportunity for climate mitigation with the reduction of cradle to gate (CtG) embodied carbon emissions from new homes and renovations.

IMMEDIATE ACTIONS

Home builders can take immediate steps to achieve 30 to 50 percent emissions reductions at cost parity with currently available tools and materials.

CARBON IMPACT

The potential carbon emissions impact of new home construction in the United States exceeds the equivalent of annual CO_2 emissions from entire countries such as Bahrain, Denmark, and Ireland.

HIGH EFFICIENCY, LOW EMBODIED CARBON

It is possible to build energy-efficient, healthy, and comfortable homes with both low operational and low embodied carbon emissions now. Embodied carbon emissions are becoming increasingly significant as operational GHG emissions continue to decline.

VIEW THE REPORT

rmi.org/insight/hidden-climate-impact-of-residential-construction