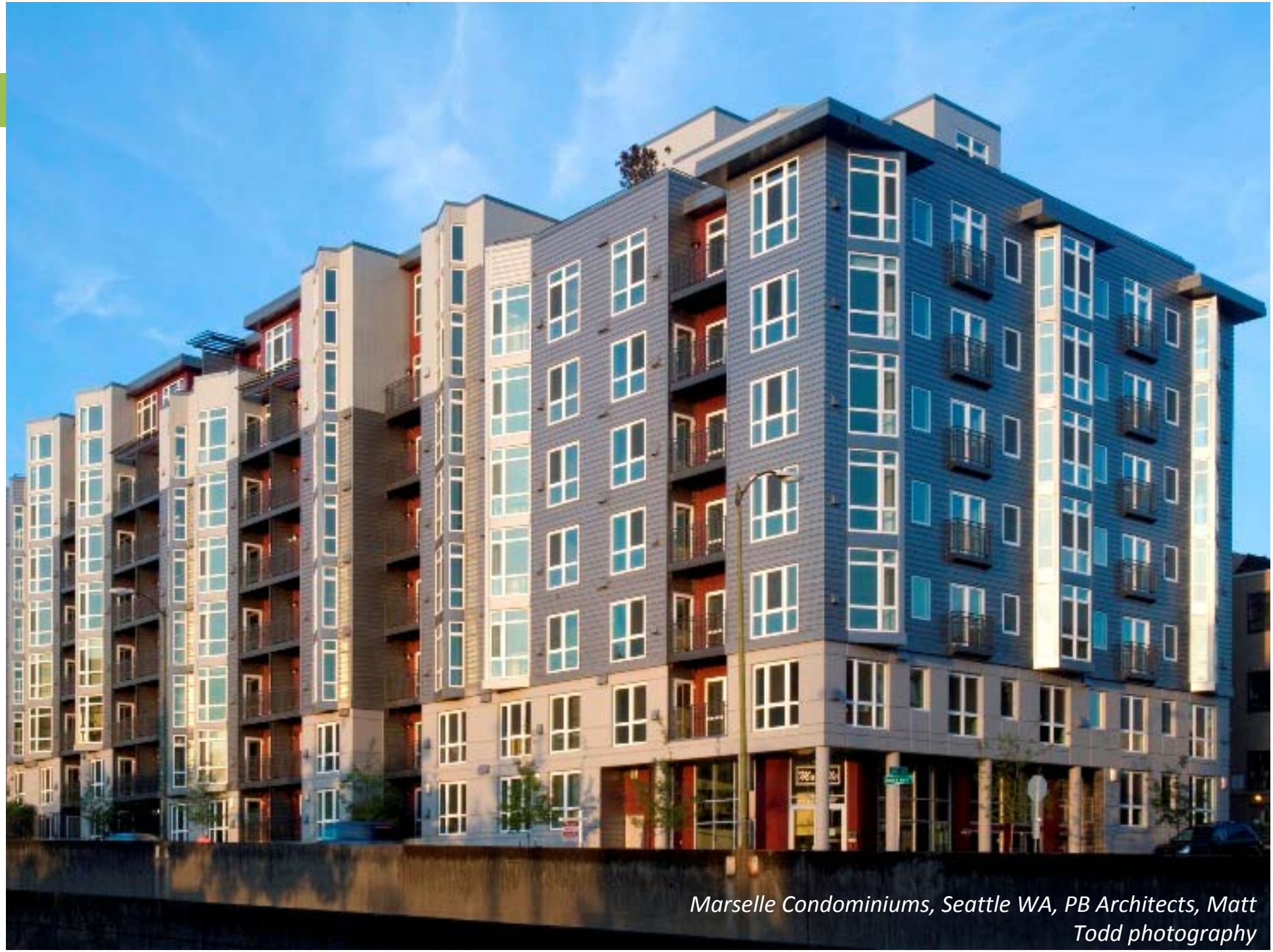


Marselle Condominiums, Seattle WA, PB Architects, Matt Todd photography

WoodWorks™
WOOD PRODUCTS COUNCIL

Wood Revolution

U.S. Non-Residential & Multi-family Markets

Jennifer Cover, PE
Executive Director
WoodWorks – Wood Products Council

New Genesis, Los Angeles CA, KC Kim, Photo: GB Construction

WoodWorks Focus

Photo VanDorpe Chou Associates

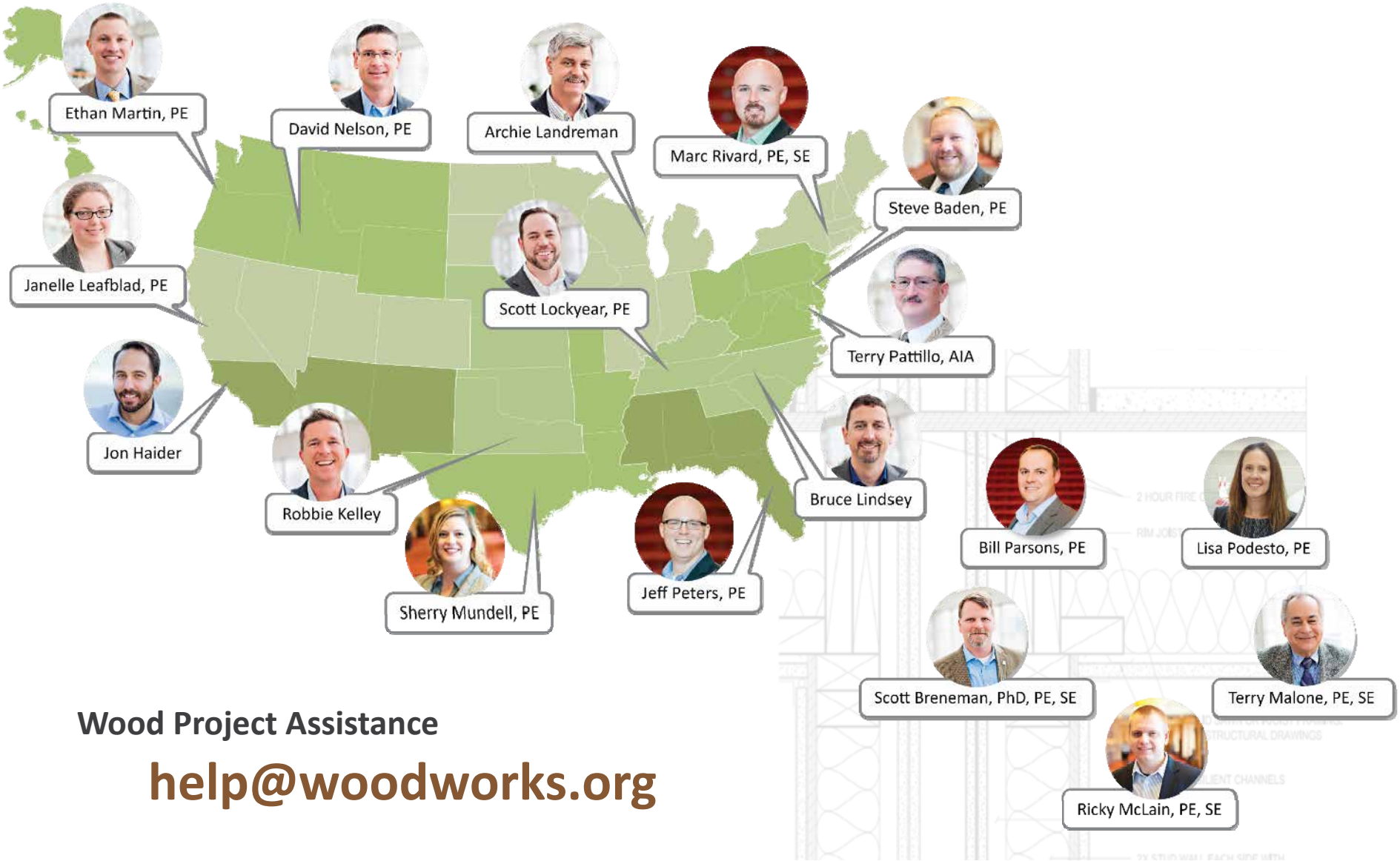
Two Pronged Strategic Outreach

Educational Outreach

One-on-One Project Support and Technical Assistance

WoodWorks℠
WOOD PRODUCTS COUNCIL

WoodWorks Technical Staff



Wood Project Assistance

help@woodworks.org

Education Outreach – 6 Months

Practitioner Education Hours

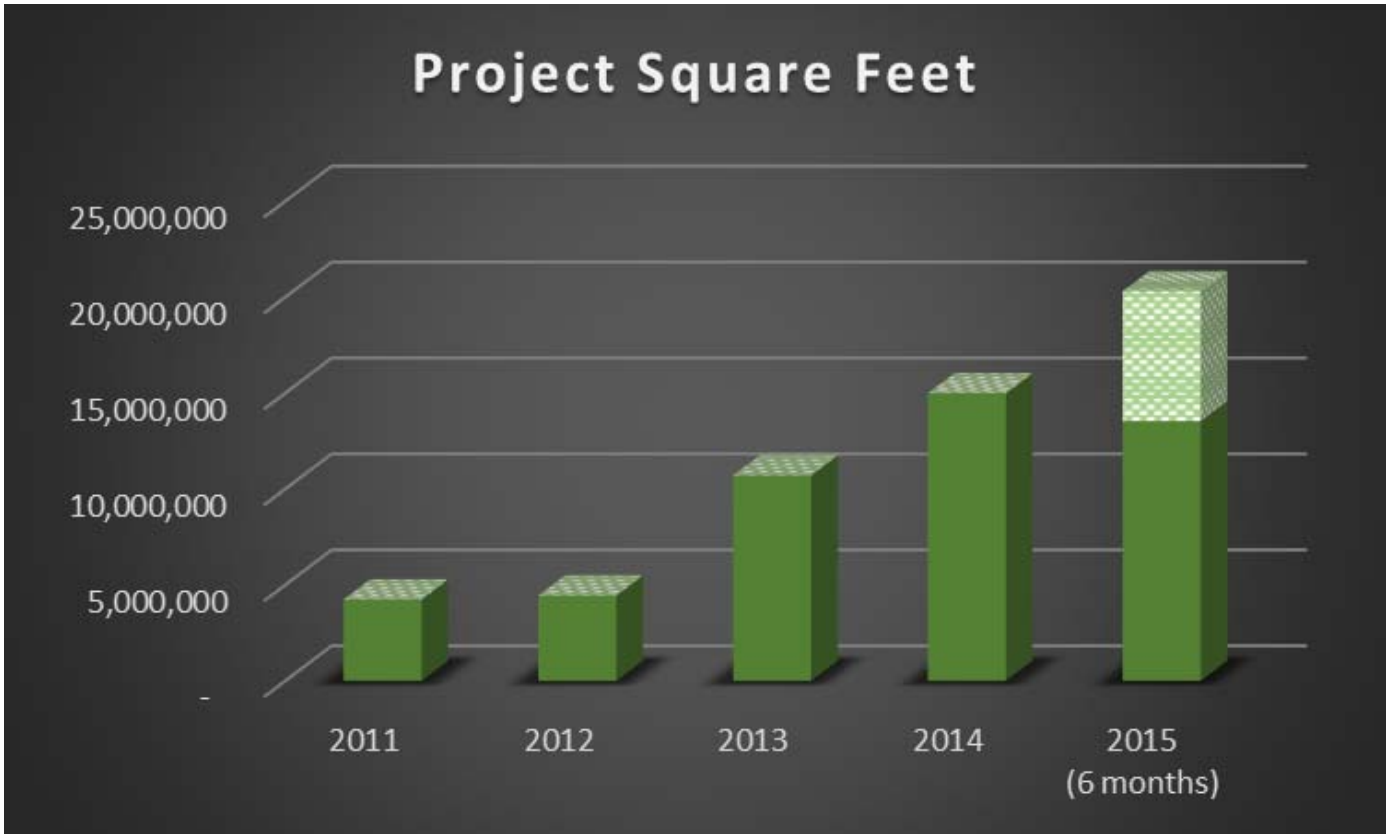
Jan to July 2015

24,850

- *2 Wood Solution Fairs*
- *44 Workshops and Lunch Seminars*
- *6 Webinars*
- *100 Lunch and Learns*
- *9 Tradeshows*
- *38 Third Party Speaking Engagements*

Credit Valley Hospital, Mississauga, ON, photo naturallywood.com

432 Projects Influenced & Converted



WoodWorks℠
WOOD PRODUCTS COUNCIL

Wood Design Provides Solutions

Photos (clockwise from top left): Stadthaus, Waugh Thistleton Architects; N-Habit Belltown, Blanton Turner; El Dorado High School, Dennis Ivy; The Bullitt Center, John Stamets

Wood Design Provides Solutions

1. **Wood is the primary framing material**

2. **They have all been built**

Global Population Boom

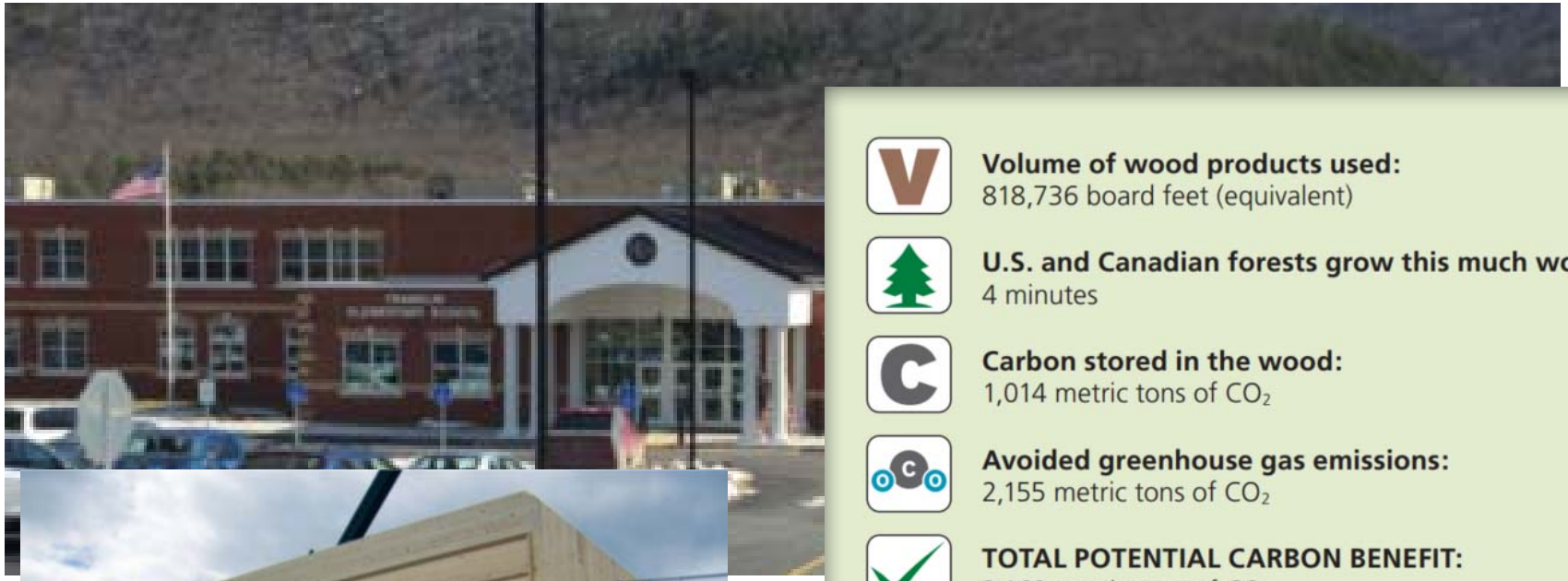
Global Population
9.5 billion by 2050
30% increase

Urban Population
6.3 billion by 2050
60% increase

Source: United Nations, World Urbanization Prospects, 2014 Revision

Photo credit: Chris 73 / Wikimedia Commons

WoodWorks Carbon Calculator



Franklin Elementary School (45,200 sq ft) Franklin, WV
Photos: MSES Architects

Volume of wood products used:
818,736 board feet (equivalent)

U.S. and Canadian forests grow this much wood in:
4 minutes

Carbon stored in the wood:
1,014 metric tons of CO_2

Avoided greenhouse gas emissions:
2,155 metric tons of CO_2

TOTAL POTENTIAL CARBON BENEFIT:
3,169 metric tons of CO_2

EQUIVALENT TO:

605 cars off the road for a year

Energy to operate a home for 269 years

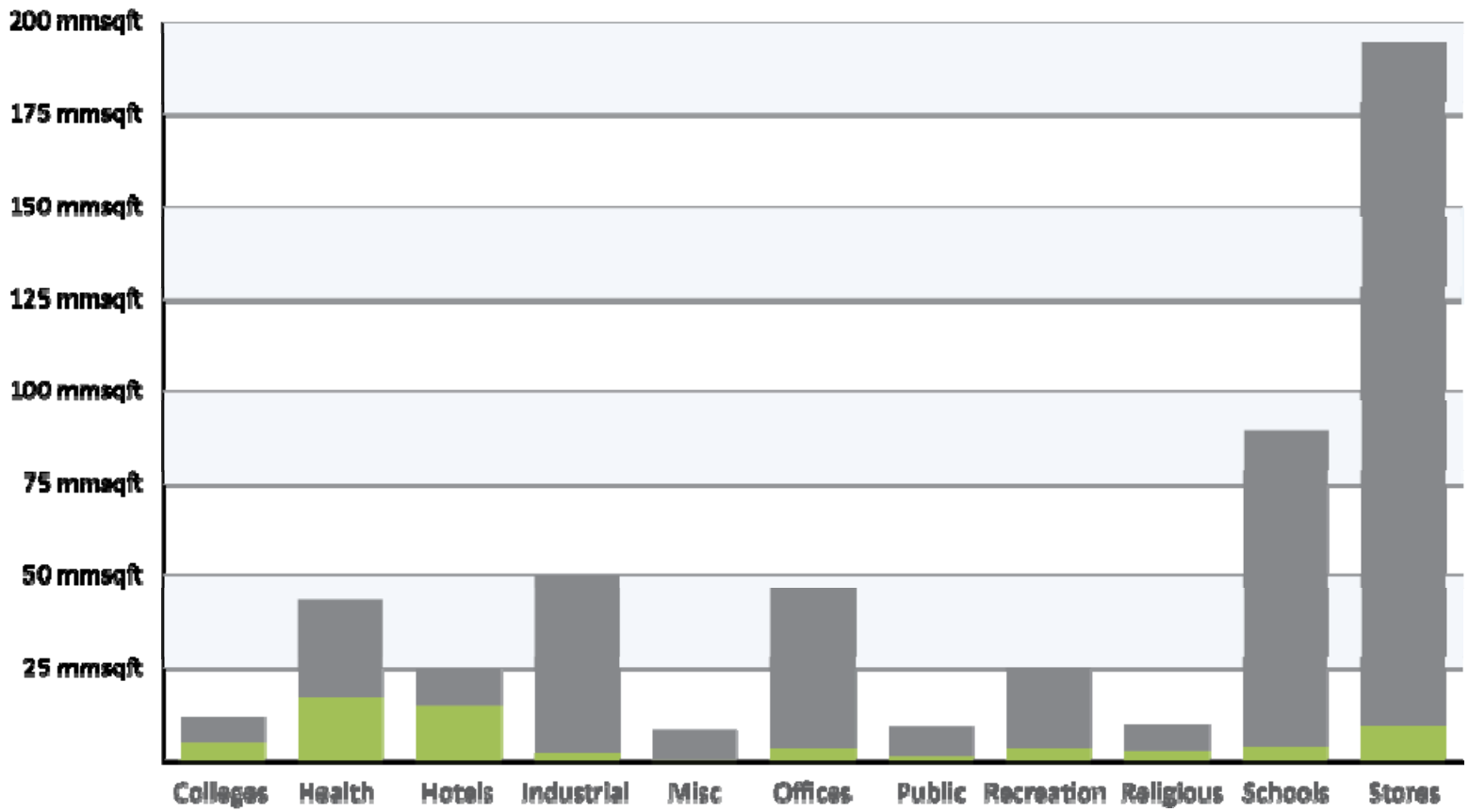
Source: US EPA

http://www.woodworks.org/design-and-tools/design-tools/online-calculators/

Key Market Opportunities

Looking Forward

Non-Residential Construction Market



Non-wood

Wood

Based on project square feet
(only considering projects that by code, could be wood)

Taking Wood Projects Taller

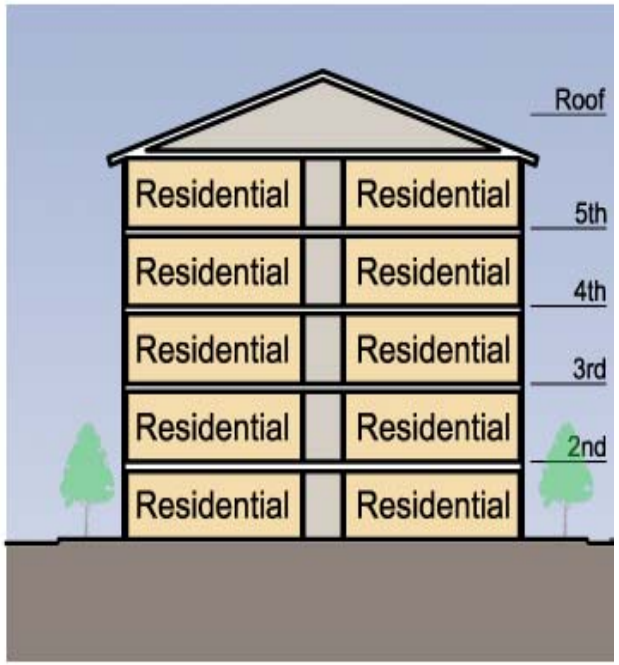
Image: Lend Lease

How do we get there in the U.S.?

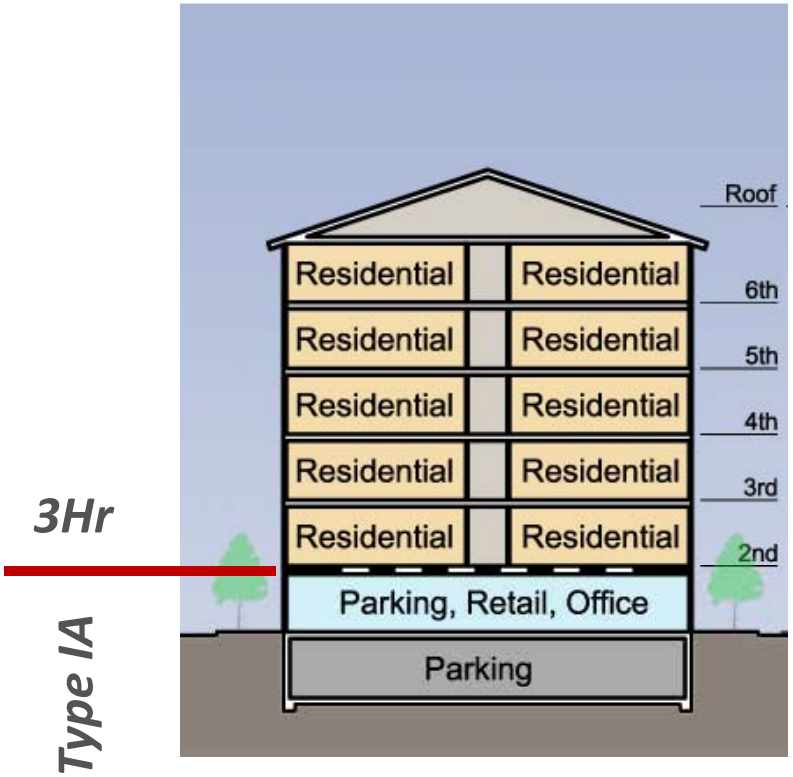
- Creative Architects
- Engineering Advancements
- Code Advancements
- Innovative Wood Materials

Forté
Melbourne, Australia
10 stories
105.5 ft
Developer : Lend Lease
Completed 2012

Code Advancements



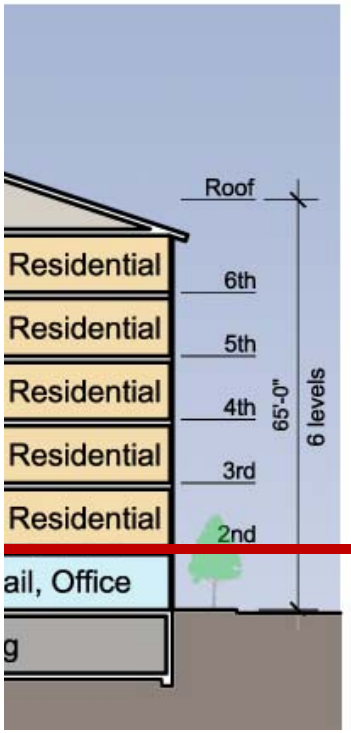
5 story Type III Building



5 story Type III Building
On Top of a Type IA Podium

See Special Provisions for Podiums in IBC 2012 510.2
Increases allowable stories… not allowable building height

Evolution of IBC Mixed-Use Podium



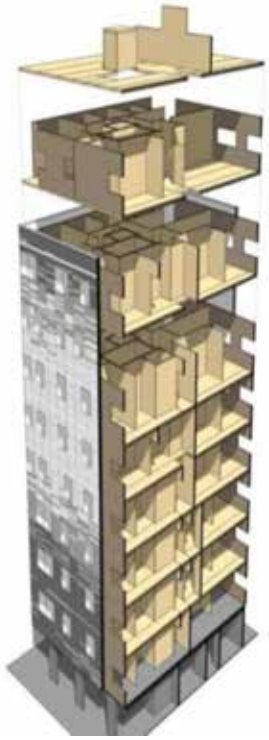
3Hr

Type IA

IBC	2006	2009	2012	2015
Section	509.2	509.2	510.2	510.2
Upper Occupancy	A, B, M, R or S			
Lower Occupancy	S-2 Parking	A, B, M, R or S-2 Parking		**Any Except H**
Podium Height	1 Story			**Multi-Story**

IBC Provisions for Mixed-Use podium have been evolving.

Innovative Wood Materials



Images (clockwise): Metropol Parasol, Seville, Spain, D J. Mayer H. Architects, photo ARUP; Centre Pompidou Metz, Metz France, Shigeru Ban Architects, Jean de Gastines Architects, photo ARUP; Stadthaus, Waugh Thistleton Architects; Richmond Olympic Oval, Richmond, BC, Canada, Cannon Design Architecture, photo Stephany Tracey

What is the appeal of Mass Timber?

Sustainability

- Reduced Embodied Carbon
- Minimal waste production
- Highly Energy Efficient

Performance

- Disaster Resilient
- Good Fire Resistance
- High performing Acoustics
- Structural Flexibility

Construction Efficiency

- ~75% lighter than concrete
- Reduced construction time
- Pre-fabricated and Precise

Mass Timber Panels

Nail Laminated Timber (NLT)

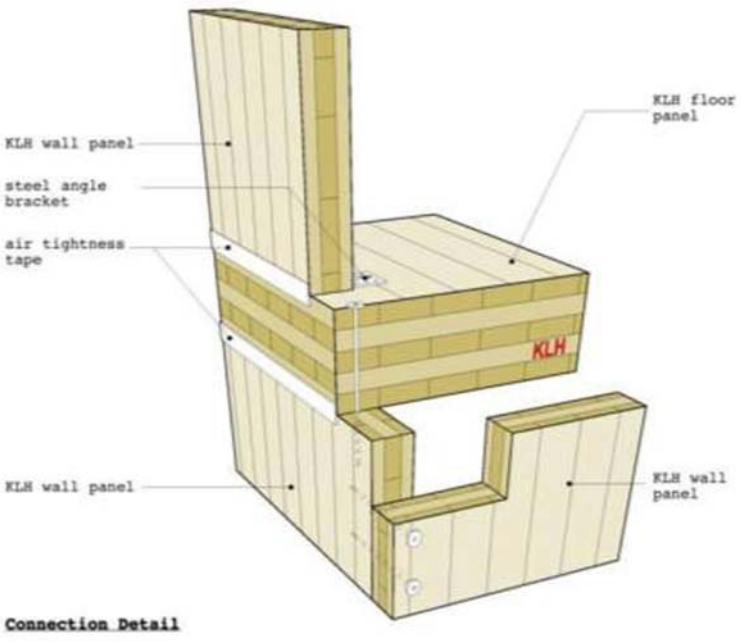
Glue Laminated Timber (GLT)

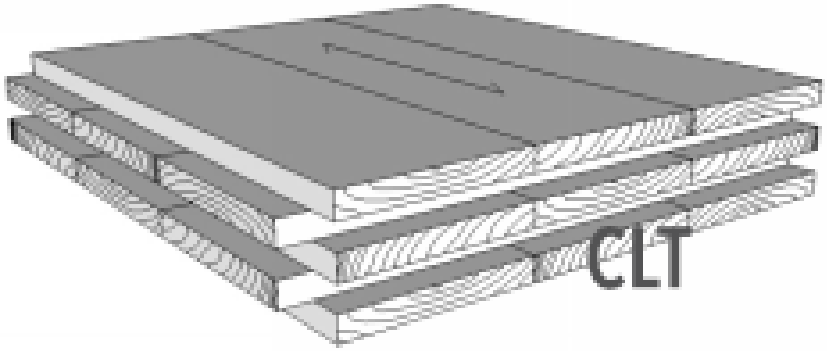
Laminated Veneer Lumber (LVL)

Cross Laminated Timber (CLT)

Images Source: Structurecraft

CLT – Cross Laminated Timber



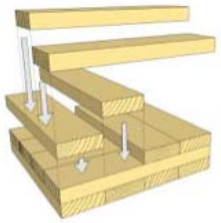


Cross Laminated Timber

Redstone Hotel, Huntsville, AL
Photo: Lend Lease

Graphic Credit: COCIS Edinburgh Napier University and ITAC, University of Utah

What is Cross Laminated Timber (CLT)?



- Layers of dimension lumber stacked crosswise and glued on their wide faces. Adhesives follow requirements of Glulam beams.

- Two way slab - panels are typically 8-10’ wide, up to 20” thick and up to 64’ long.

- Finished panels are planed, sanded, cut to size. Then openings are cut with precise CNC routers.

- Custom engineered for material efficiency.
- Custom designed for project.

NLT – Nail Laminated Timber

Nail Laminated Timber

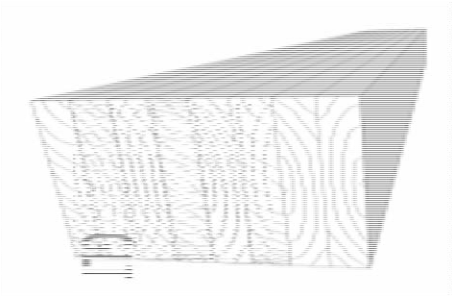
Bullitt Center, Seattle, WA

Graphic Credit: COCIS Edinburgh Napier University and ITAC, University of Utah

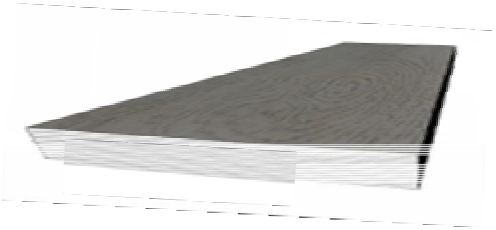
Photo John Stamets

Other Mass Timber Panel Products

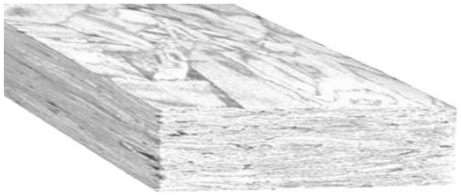
Glue Laminated Timber



Laminated Veneer Lumber



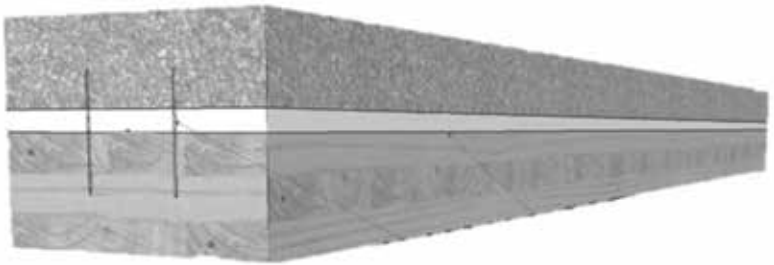
Laminated Strand Lumber



Top: Jackson Hole Airport, Gensler, photo Matthew Millman; bottom: Earth Sciences Building, University of British Columbia, Vancouver, Canada, Perkins + Will, photo courtesy naturallywood.com

Other Mass Timber Panel Products

LCT1
ARCHITECT: Hermann Kaufmann
ENGINEER: Merz Kley Partner
PHOTO CREDIT: CREE



Earth Science Building, Vancouver, Canada
ARCHITECT: Perkins + Will
ENGINEER: Equilibrium
Photo Credit: Structurlam

Wood/Concrete Composites

Graphic Credit: Umass Amherst Building and Construction Technology Dept

U.S. Tall Wood Building Prize Competition

Framework
Portland, OR
12 stories / 130 feet tall Retail/ office/apartments

475 West 18th Street
Manhattan, NY
10 stories / 120 feet tall
Commercial / condominiums

Rendering: Lever Architecture

VanDorpe Chou Associates

What is your role in our sustainable future?

Thank you for your support!

SLB SOFTWOOD LUMBER BOARD

Canada

Wood Project Assistance

help@woodworks.org

WoodWorks Website

www.woodworks.org

TBWA Chiat Day Office, San Francisco, CA, Marmol Radziner & Associates Architects, photo Benny Chan