Heartwood Workforce Housing – Glulam / CLT and Steel BRB Frames

Susan Jones
Principal Architect, Founder, atelierjones
ON HEARTWOOD

CTBUH 2022 | Crown Hall, IIT, CHICAGO
STEEL-TIMBER Hybrid Buildings Conference

atelierjones
may 23, 2022
MASS TIMBER LEADERSHIP

DESIGN

2010

2013

RESEARCH

2016

2018

2020-21

2022

CITIHOUSE, SEATTLE, WA 2010-2015

CITIHOUSE, BELLEVUE, WA 2012-2015

MASS TIMBER MIDSIZE SCHOOLS, WASHINGTON STATE, LEGISLATIVE GRANT 2016-19

MASS TIMBER INSURANCE: HUNTING LODGE, WOOD INNOVATION GRANT 2019-21

HIGH RISE ON THE HIGHPLAINS PERMITTED 2021

NEW LOWER CARBON TYPE NO BUILDING PERMITTED 2021

KOB TALL WOOD BUILDING CODE COMMITTEE 2015-19

FIRE TESTS II RESEARCH (URBAN BAN OFFICE, SAN ANTONIO, TEXAS) 2017

TESSERANGA: NATIONAL CODE HEARINGS 2019

BEING: WASHINGTON STATE TALL WOOD CODES, GOVERNOR’S BUREAU 2019

TOYOYUH HALL, TOYO UNIVERSITY DEPARTMENTS 2019

FIRE TESTS II RESEARCH INSTITUTE OF SWEDEN 2020

WHOLE BUILDING LCA GRANT THE NATURE CONSERVANCY UK, FOREST PRODUCTS LAB 2019-21

KOB-147 PASSED 100% EXPOSED CONCRETE TYPE IV-6
PROJECT TEAM
Client | Community Roots Housing
Developer | Skipstone
Architect | atelier|jones LLC
Structural Engineer | DCI Engineers
General Contractor | Swinerton

HIGHLIGHTS
$250,000 Wood Innovation Grant Recipient from USDA
Seattle’s 1st Mass Timber Middle-Income Housing
Seattle’s 1st Mass Timber Type IV-C 8 Story Housing

STRUCTURE
66,445 GSF
126 Units
CLT on Glulam Post & Beam Frame
Steel BRBF Lateral System
Construction Type IV-C

SEATTLE’S FIRST TYPE IV-C BUILDING
TALL WOOD BUILDING CODE | IBC 2021

TYPE IV-A

270 ft
18 stories
Fully encapsulated

TYPE IV-B

180 FT
12 stories
Partially encapsulated

TYPE IV-C

85 FT
8 stories
Fully exposed, 2 Hr FRR

HEARTWOOD
COMMUNITY ROOTS HOUSING

- steel brb
- lateral core
- total cubic meters: 16

- mass plywood panel stair
- total cubic meters: 26.73

- cross laminated timber panels
- total cubic meters: 775.65

- glue lam beams

- glue lam columns
- total cubic meters: both columns and beams: 215.47

- concrete foundation
- total cubic meters: 347.54
STEEL BRBF LATERAL SYSTEM
STEEL BRB TO CONCRETE
2HR FRR | TALL WOOD
11. "Test Results for BEB-3"

BEB-3 was a single bar bolt and pin connection at both the top and bottom, as shown in Figure 3.9.

Figure 3.9: Double Bolt and Pin Connection Details for BEB-1.

Figure 3.9: Double Bolt and Pin Connection Details for BEB-1.

Double Bolt

Repad Pin

Figure 3.9: Double Bolt and Pin Connection Details for BEB-1.

Figure 3.9: Double Bolt and Pin Connection Details for BEB-1.
MASS TIMBER
+
STEEL LATERAL

HYBRID CONSTRUCTION
ON HEARTWOOD

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