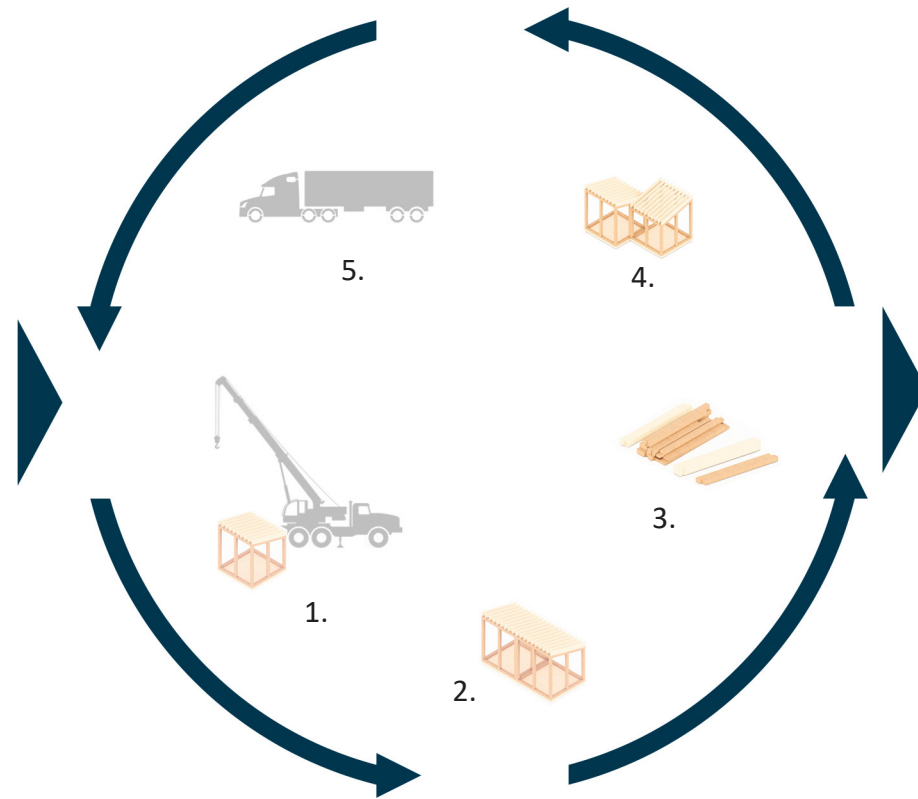


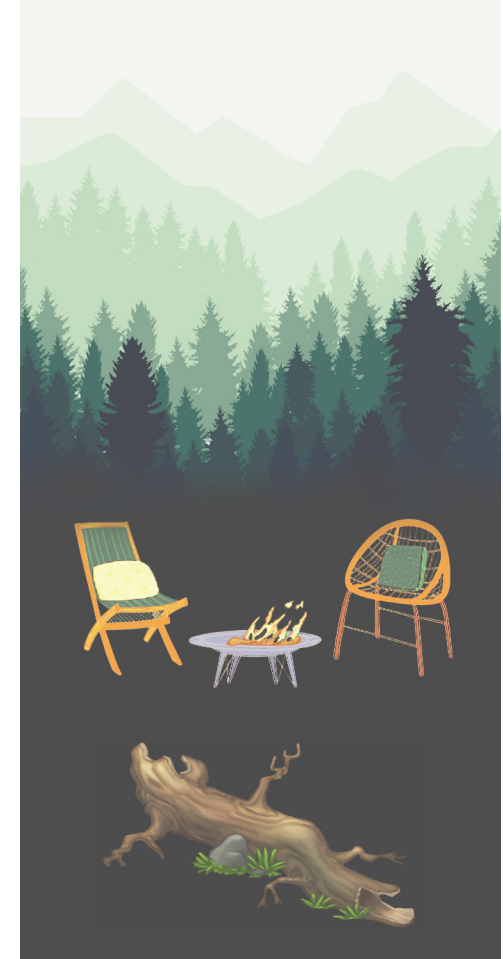
To build a home, most manufacturing is linear. Small pieces of lumber are brought into the city of Duluth, before being used for homes. After the lumber gets old, the building is bulldozed. This modular system is designed to complete the manufacturing cycle, by using a kit of parts made out of heavy timber, which is local and widely available resource in the region.



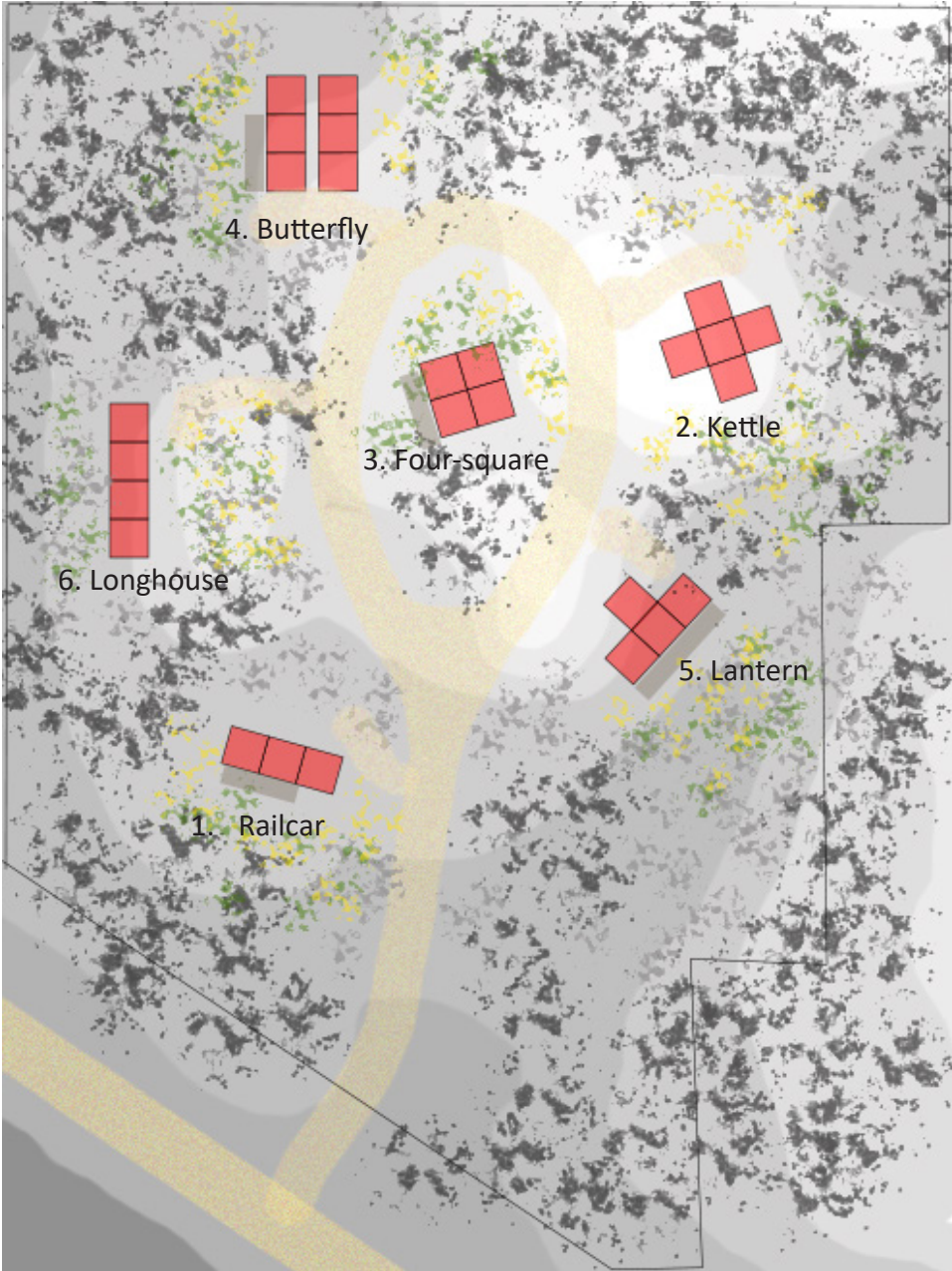
In northern Minnesota, jack pine and red pine are harvested for construction. The heartwood in the bottom half of the tree is used because of its strength and resistance to shrinkage.



1. A module is constructed from a kit of basic wooden components.
2. Multiple modules can be added to create desired configuration.
3. Modules can be easily disassembled for reuse or reconfiguration.
4. Disassembled modules can be reconstructed to fit changing needs.
5. Disassembled modules can be moved and reconstructed on new sites.



After large timber members are reused to their capacity, the lifecycle continues in products like furniture and decorations. When the wood is old it can finally go back to nature.



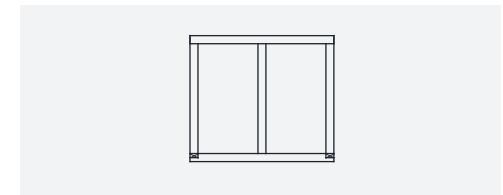
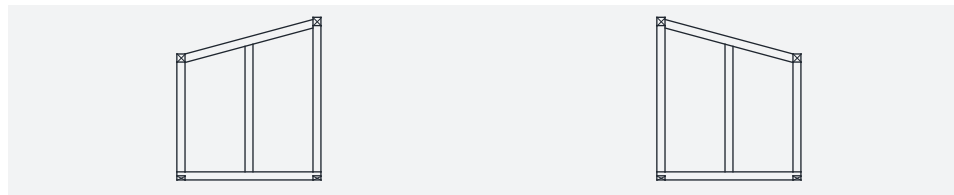
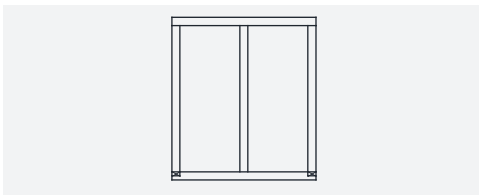
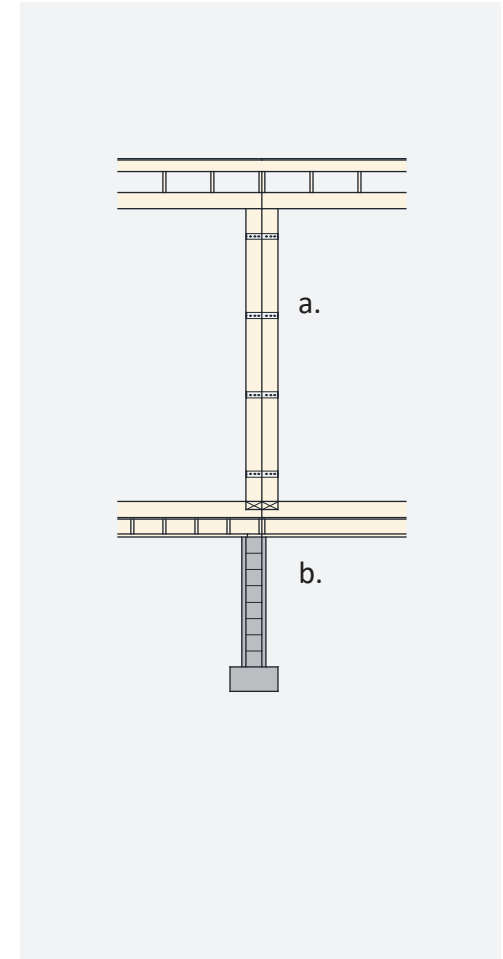
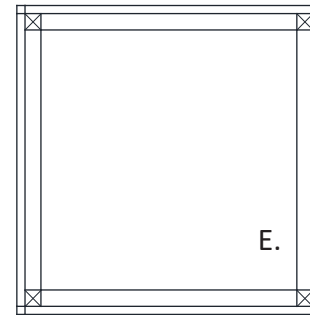
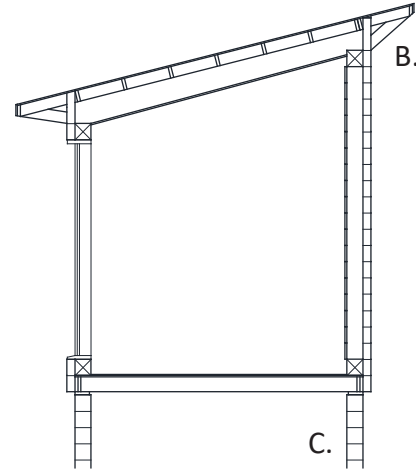
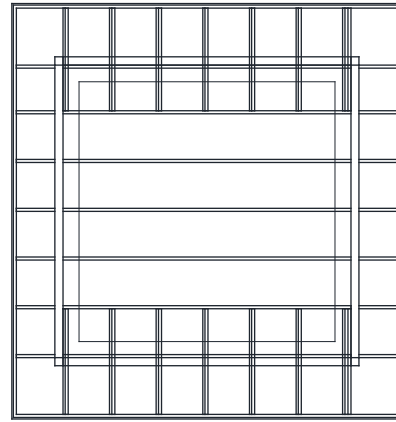
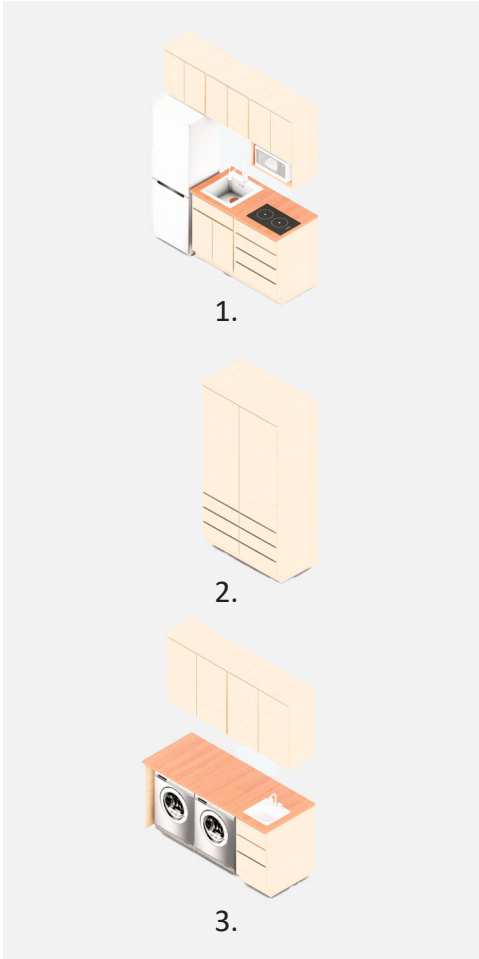
34x Trinity Rd,
Duluth MN
55814



1. Kitchen module
2. Entry or bedroom storage module
3. Laundry and bathroom sink module

- A. Lookouts extend over wall framing
- B. Customizable eave extension
- C. Customizable CMU foundation
- D. Joists and belt joists start at the same length
- E. Wooden weather barrier is attached to log structure

- a. Columns are attached with steel strapping
- b. Extensions are accomplished by rotating the joist configuration for support



A. 5/8" sheathing and roof material

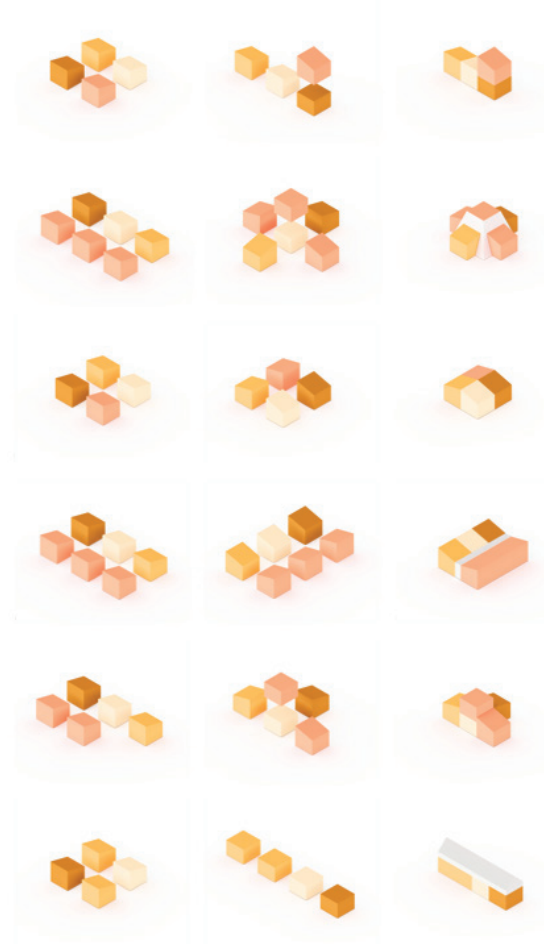
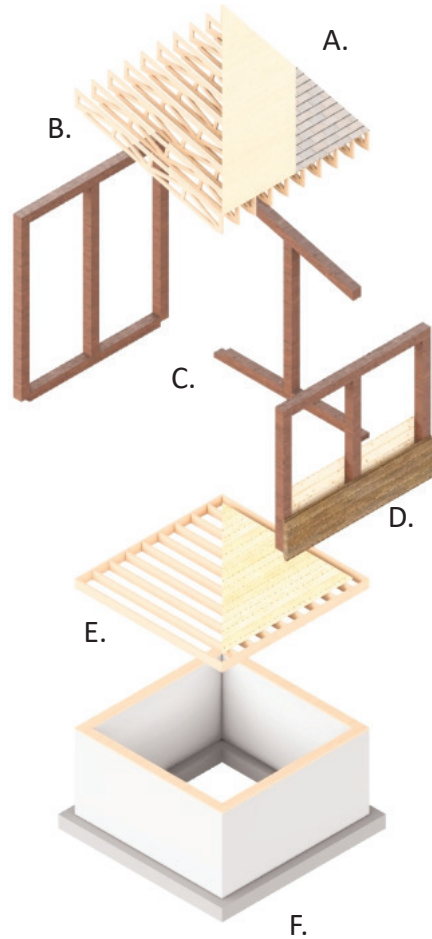
B. Truss with 16" energy heels

C. 8" x 8" square-cut log structure

D. Wooden weather barrier and siding, interior wood finish

E. Joist structure and wood flooring

F. Insulated and customizable CMU foundation



1. Railcar: sleeping loft, 1 bath, living room, kitchen

2. Kettle: 2 bed, sleeping loft, 1 bath, living room, kitchen

3. Four-square: 1 bed, 1 bath, living room, kitchen

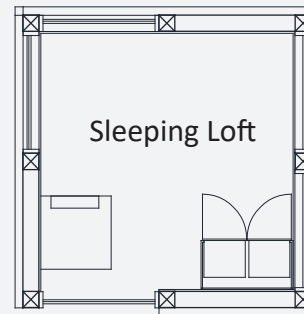
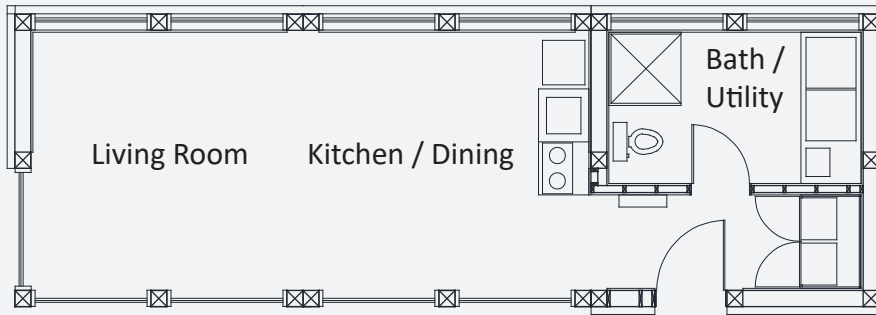
4. Butterfly: 3 bed, 1 bath, living room, kitchen

5. Lantern: 1 bed, sleeping loft, 1 bath, living room, kitchen

3. Longhouse: 2 sleeping lofts, Den, 1 bath, living room, kitchen



RAILCAR





BASIC BUILDING MODULE: x 4

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (6): 58

Roof trusses: (5) 16" trusses, (2) 14" trusses

Roof sheathing and ceiling 12' x 14' x 5/8" (2)

ENVELOPE:

Siding: 4" x 8" x 12' (78 per module x 4) - windows and doors (116):

Interior finish: 1" x 8" x 12' (112 + interior walls 30): 142

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (10)

Porch: 16" trusses (10), 8" x 8" x 7'6" (2), 8" x 8" x 12' (1)

WINDOWS AND DOORS:

Window A 12'8" x 5' (4), Window B 3' x 5' (8), Window C 12'8" x 5' x 10'5-3/4" (2), Custom 7'9-5/8" x 5' x 6'5-3/4" (1), Custom 7'9-5/8" x 5' (1), exterior door, interior door

CABINETS:

Kitchen module (1)

Utility module (1)

2' closet (1)

ladder

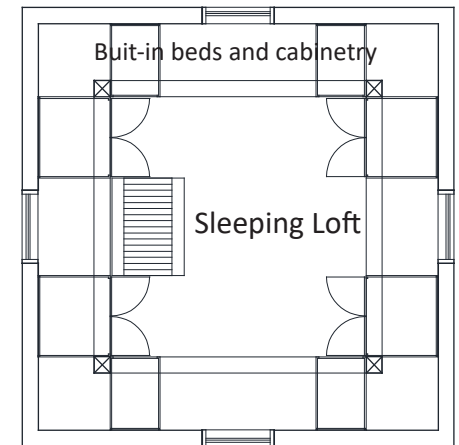
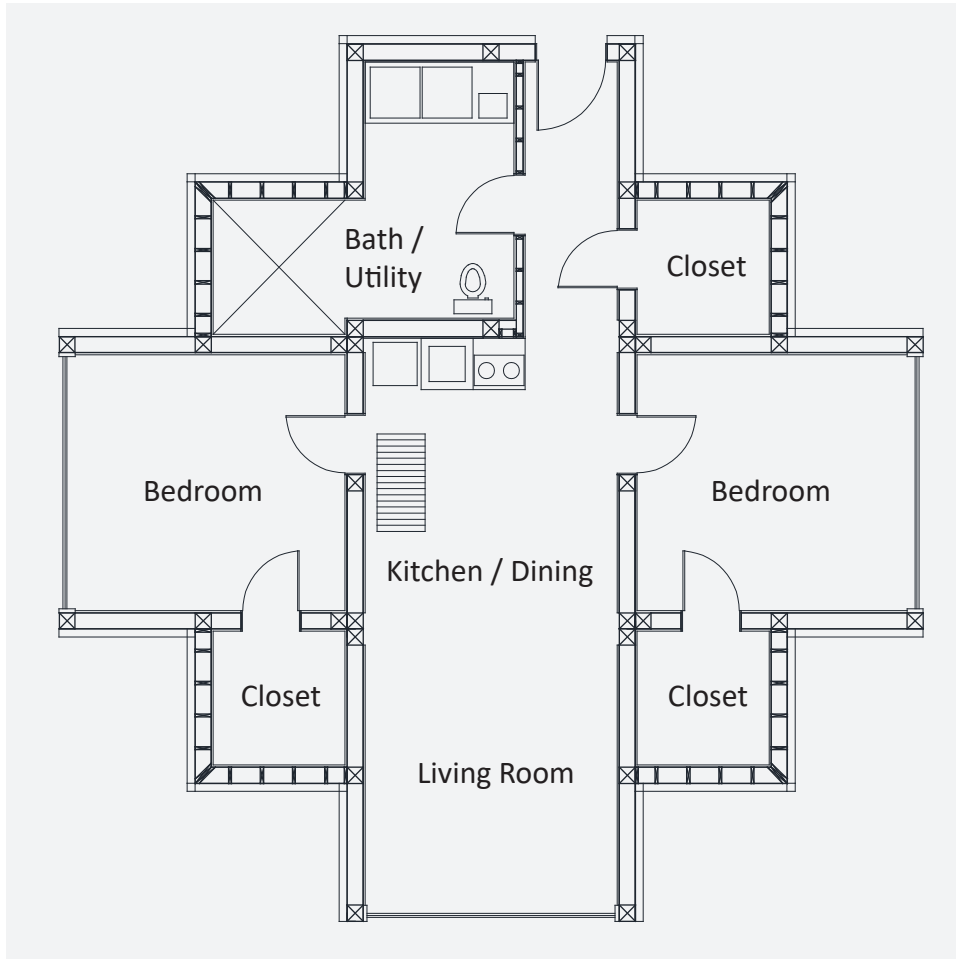
Appliances: kitchen module, bathroom module

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance 5, external bid



K E T T L E





BASIC BUILDING MODULE: x 6

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (14): 82

Roof trusses: (20) 16" custom trusses, (7) 16" flat custom trusses

Roof sheathing and GWB 12' x 14' x 5/8"

ENVELOPE:

Siding: 4" x 8" x 12' (180) + 4" x 8" x 20' (148)

Interior finish: 1" x 8" x 12' (328 + interior walls 75): 403

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (60)

Custom window framing: (4) 2" x 8" x 12', (5) 2" x 8" x 8'

WINDOWS AND DOORS:

Custom 9' x 10'8" (3), Custom diameter 4' (4), exterior door,
interior door (6)

CABINETS:

Kitchen module (1)

Utility module (1)

custom cabinetry in sleeping loft

ladder

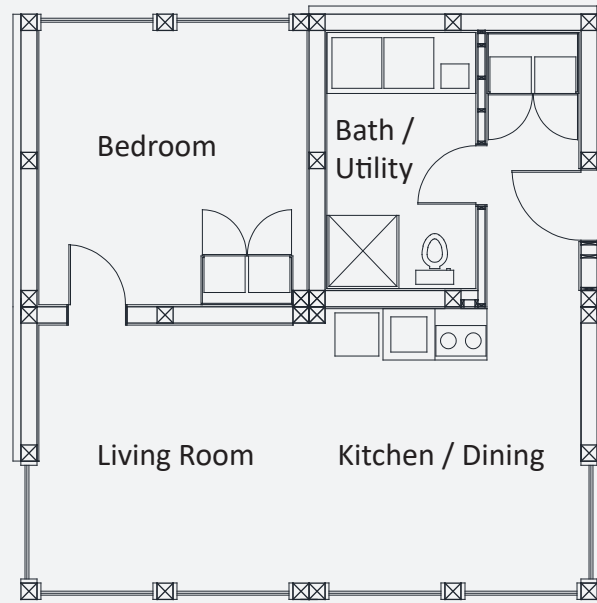
Appliances: kitchen module, bathroom module, custom shower

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance 5, external bid



FOUR-SQUARE





BASIC BUILDING MODULE: x 4

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (6): 58

Roof trusses: (5) 16" trusses, (2) 14" trusses

Roof sheathing and ceiling 12' x 14' x 5/8"

ENVELOPE:

Siding: 4" x 8" x 12' (78 per module x 4) - windows and doors (70): 242

Interior finish: 1" x 8" x 12' (242 + interior walls 80): 322

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (10)

Porch: 16" trusses (10), 8" x 8" x 7'6" (2), 8" x 8" x 12' (1)

WINDOWS AND DOORS:

Window C 12'8" x 5' x 10'5-3/4" (2), Window D 10'3-5/8" x 5' x 8'11-3/4" (3), Window E 9' x 5', exterior door, interior door (2), custom door 13'4" x 5' x 11'1-3/4"

CABINETS:

Kitchen module (1)

Utility module (1)

2' closet (2)

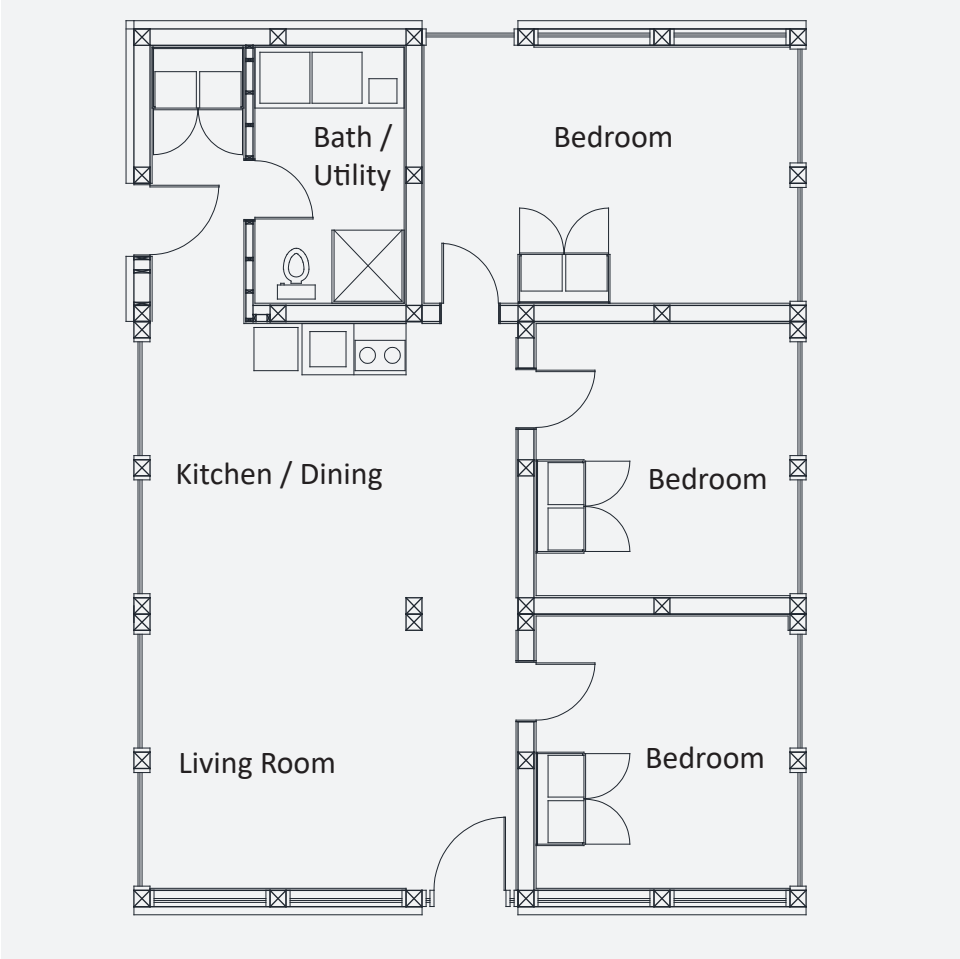
Appliances: kitchen module, bathroom module

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance 5, external bid



BUTTERFLY





BASIC BUILDING MODULE: x 6

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (20): 76

Roof trusses: (5) 16" trusses, (2) 14" trusses

Roof sheathing and ceiling 12' x 14' x 5/8" (2)

ENVELOPE:

Siding: 4" x 8" x 12' (78 per module x 6) - windows and doors (200):
268

Interior finish: 1" x 8" x 12' (268 + interior walls 160): 108

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (25)

Addition: joists 2" x 8" x 4' (36), subfloor 12' x 4' x 3/4" (3), Roof
sheathing and ceiling 14' x 4' x 5/8" (3), rafters 2" x 8" x 4' (36)

WINDOWS AND DOORS:

Window A 12'8" x 5' (10), Custom Window 3'1-5/8" x 5' x 1'9-3/4" (4),
Custom Window 1'7-5/8" x 5' x 0' (4), exterior door, interior door (4)

CABINETS:

Kitchen module (1)

Utility module (1)

2' closet (4)

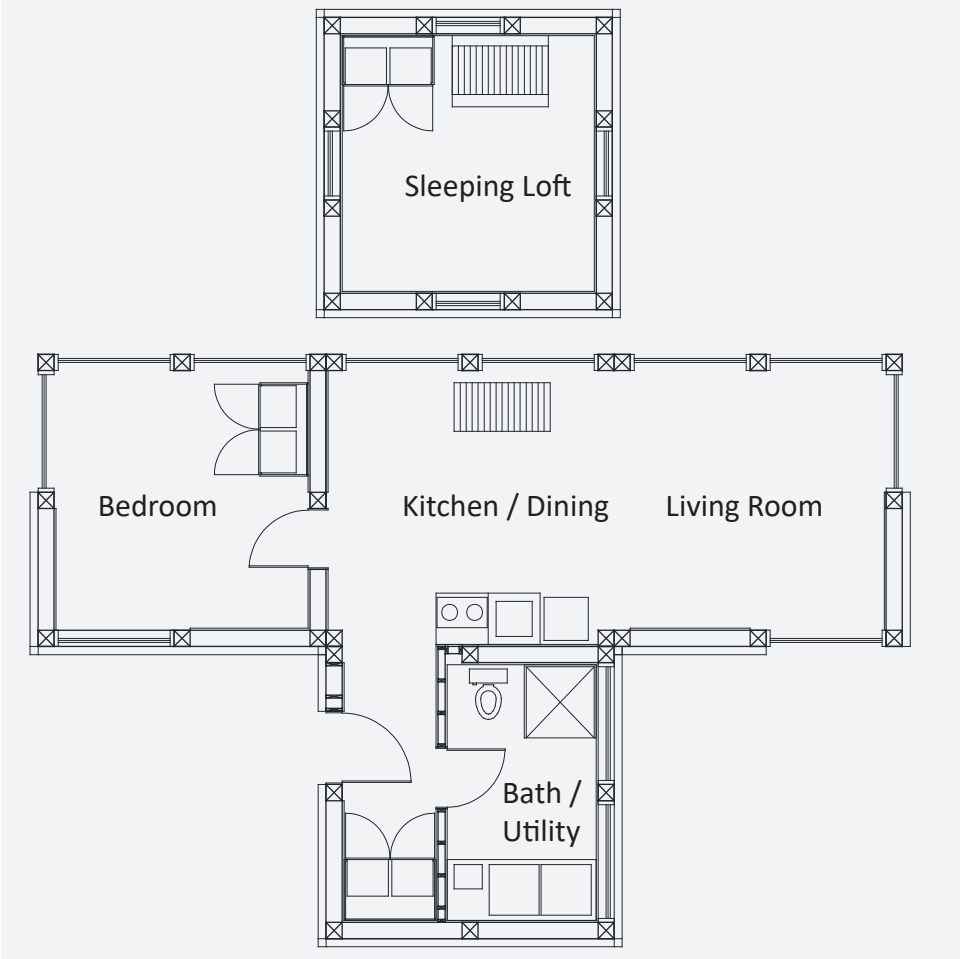
Appliances: kitchen module, bathroom module

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance , external bid



L A N T E R N





BASIC BUILDING MODULE: x 5

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (4): 76

Roof trusses: (5) 16" trusses, (2) 14" trusses

Roof sheathing and ceiling 12' x 14' x 5/8" (2)

ENVELOPE:

Siding: 4" x 8" x 12' (78 per module x 5) - windows and doors (60): 330

Interior finish: 1" x 8" x 12' (330 + interior walls 60): 390

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (15)

Custom Roof: 2" x 8" x 8' rafter (20), sheathing and ceiling 8' x 8' x 5/8" (4)

WINDOWS AND DOORS:

Window E 9' x 5' (10), Window F R-3' (4), Custom Window 2'1-5/8" x

5' x 9-3/4" (3), Custom Window 5'9-5/8" x 5' x 4'5-3/4", Custom

Window 4'3-5/8" x 5' x 3', exterior door, interior door (2) CABINETRY:

Kitchen module (1)

Utility module (1)

2' closet (3)

ladder

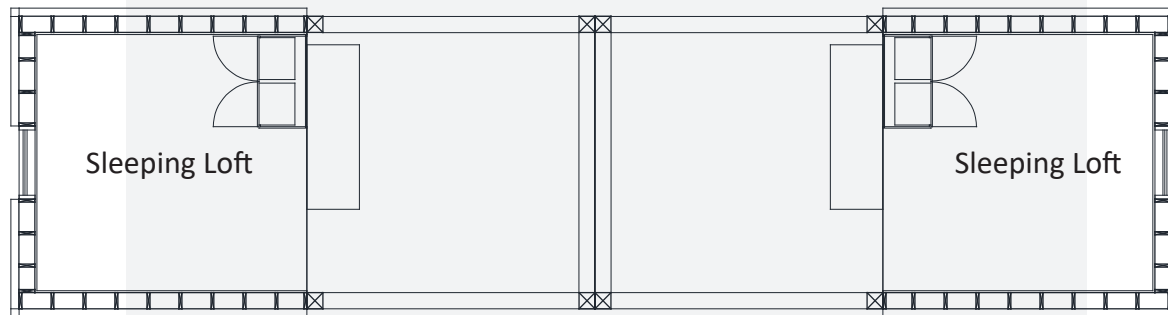
Appliances: kitchen module, bathroom module

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance 6, external bid



LONGHOUSE





BASIC BUILDING MODULE: x 4

Joist system: (16) 2" x 8" x 12'

Log structure: (16) 8" x 8" x 12' - (12): 68

Roof trusses: (5) 16" trusses, (2) 14" trusses

Roof sheathing and ceiling 12' x 14' x 5/8" (2)

ENVELOPE:

Siding: 4" x 8" x 12' (78 per module x 4) - windows and doors (60): 252

Interior finish: 1" x 8" x 12' (252 + interior walls 60): 312

FRAMING:

Bathroom component: 2" x 8" x 10' (11), 2" x 8" x 12' (4)

Door framing: 2" x 8" x 10' (5)

Custom Roof: custom truss (24), sheathing and ceiling 12' x 12' x 5/8" (8), gable framing (22) 2" x 8" x 10'

WINDOWS AND DOORS:

Window E 9' x 5' (10), Custom Window 2'1-5/8" x 5' x 9-3/4" (4)

Custom Window 9'8" x 5' (10), Window B 3' x 5' (8), Window F R-3' (2), exterior door

CABINETS:

Utility module (1)

Appliances: kitchen module, bathroom module
ladders (2)

custom fireplace and kitchen components

PLUMBING: basic kitchen / bathroom configuration, external bid

ELECTRICAL: fixture allowance 7, external bid