SHELTER PROPOSAL FOR COLORADO VILLAGE
COLLABORATIVE 'S SAFE OUTDOOR SPACES
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TIMELINE

Initial contact, what could FBD do for CVC?

Discussions and conversations about the needs identified as the first SOS locations were in early operations: shade, entry gate, healing/cooling for tents, planters for food and electrical distribution.

Prepared proposals for that round of SOS elements focus on Park Hill site opening.

New elements identified for FBD to focus on for upcoming site: Heated hand wash sinks, smoking shelter, tent waterproofing.

Prepare shelter design for prototype fabrication using flatpack furniture design strategy.

Proposals presented, and project goals shifted as the tent waterproofing solution began to focus on designing a new adaptable shelter structure that could be used for the other elements.

March 30th, 2022 CVC & community Presentation at CU Denver

Prepare shelter design for prototype fabrication using flatpack furniture design strategy.

March 30th, 2022 CVC & community Presentation at CU Denver

Engage with City of Denver for shelter approval.

Work with professional consultants to support design and prepare engineering documentation.

Design modifications based on performance evaluation, professional comments, community comments, and city feedback.

Prepare shelter design for prototype fabrication using flatpack furniture design strategy.

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March 30th, 2022 CVC & community Presentation at CU Denver

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Prepare shelter design for prototype fabrication using flatpack furniture design strategy.

NEXT SEMESTER & BEYOND

March 30th, 2022 CVC & community Presentation at CU Denver

March 30th, 2022 CVC & community Presentation at CU Denver

Prepare shelter design for prototype fabrication using flatpack furniture design strategy.
EXISTING ISSUES

SHADE

ENTRY

HEATING/COOLING

PLANTERS FOR FOOD

ELECTRICITY DISTRIBUTION

EVOLVING PROBLEMS

WATER PROOFING
The tent doesn't work

HANDSINKS
More than clean hands - a grooming station. It's about self love and reflection

VENTILATION
Smoking is about community. Community is what holds everything together.
EXISTING CONDITIONS

WATER PROOFING
The tent doesn't work

HANDSINKS
More than clean hands - a grooming station. It's about self love and reflection

VENTILATION
Smoking is about community. Community is what holds everything together.

INDIVIDUAL TENTS

COMMUNAL TENTS

ADA TENTS

FACILITIES

RESOURCE TENTS

EMPLOYEE TRAILER

ENTRY
ROAD MAP FOR ITERATIVE DESIGN

1 - UNDERSTAND OUR OPTIONS

> Studying and evaluating precedents and different models already in use
> Emphasize our goals: dignity, transportability, and cost

2 - REFINE DESIGN

> Extrapolate from research and refine design details
> Generate list of possibilities within constraints
> Engage students and community representatives

3 - FINESE LOGISTICS

> Determine constructability and ease of replication
> Determine manufacturing methods
> Detail plan of execution
> Build small scale prototype

4 - BUILD A PROTOTYPE

> Test project management and planning
> Test CNC file to be distributed to manufacture
> Support design development

5 - SHARE WITH WORLD

> Present to as many people as possible
> Collect as much data from as many people as possible
> Test in controlled field setting for evaluation and test in actual SOS application

6 - GO BACK TO STEP 1

> This process depends on our willingness to evaluate and re-evaluate each step, plan ahead, and support idea development to successfully execute good design.
SUMMARY OF RESEARCH

CONESTOGA HUT
Methodology
Initial Material List
Legal precedent
Shape factor
Rough Dimensions
Launching Point

FLAT PACK DESIGN
Constructability
Ease of Build
Furniture-Like Assembly
Mass Manufacturing Potential
Transportability
Cost

TRAUMA INFORMED DESIGN
Nuance of Privacy
Nuance of Dignity
Site Plan Design
Flexible Comfort
Privacy & Visibility
The Essence of Feeling “Safe”
TRAUMA INFORMED DESIGN PRINCIPLES

Calming Isolation
A place to completely black out the world, where you can reconnect with yourself and preserve your boundaries.

Active Discharge
Getting a controlled dose of adrenaline in a mediated risk environment.

Gentle Stimulation
Slowly getting out of disassociation and back into the body.

Distraction
Somewhere to detach and focus on something simple.

Sensory Boundaries

Nested layers

Identity Anchors

How do these coalesce to create a safe and rejuvenating space for the un-housed?
CURRENT

Calming location
A place to completely block out the world, where you can reconnect with yourself and preserve your boundaries.

Gentle Stimulation
Slowly getting out of dissociation and back into the body.

Active Discharge
Getting a controlled dose of adrenaline in a mediated risk environment.

DISTRACTION
Somewhere to detach and focus on something simple.

NESTED LAYERS
SMALL
DOUBLE HAND SINK
3'-6" L
5' W
5'-6" H

MEDIUM
DWELLING
10' L
7' W
7'-10" H

LARGE
SMOKING SHELTER
12' L
8'-4" W
9'-4" H

3 FUNCTIONS, 1 FORM
BRIEF DESCRIPTION:
We focused on three fundamental goals to design a safe single occupant shelter:

DIGNITY
This shelter uses quality materials. The space is designed to serve many needs while the shape defines a unique and consistent design language for a community.

TRANSPORTABILITY
The shelter can be delivered, assembled, disassembled, relocated, and reassembled by a two person team of novice builders with a pick-up truck. It leaves no footprint behind when it is relocated.

COST
The tents currently in use last about a year, but this shelter is durable enough to last seven to ten years for half the price of the tent replacements over the same amount of time. The shell offers better protection from the elements compared to the current solution.

COMPONENTS

INSULATED CANVAS
the shelter covering consists of an air entrained insulation with radiant barrier sandwiched between 2 layers of canvas.

RIDGE BEAM
the ridge beam ties the whole structure together ensuring the end walls and ribs all stay in place and have sheer support.

END WALLS + OPENINGS
CNC machine routed 4x8 sheets of plywood then doubled up to make solid walls, window shutters, and a door.

RIBS
CNC machine routed 4x8 sheets of plywood are doubled up to make the legs in three segments: two legs that slip into notches cut in the floor, and the arch that connects the legs.

FLOOR FINISH
CNC machine routed 4x10 sheets of plywood that perfectly fit the ribs.

FLOOR BASE
a series of treated 2x6 lumber joists that buffer the shelter from the ground.

MATERIAL LIST
2 qty 4 x 10 Plywood Sheets
12 qty 4 x 8 Plywood Sheets
6 qty 2 x 6 Treated Lumner
1 qty Custom made water resistant and insulated fabric by Denver Tent
36 qty Canvas hooks
1 // BASE

MATERIALS:
8 qty 2x6 ground contact treated joists
2 qty CNC machine routed 4x10 plywood sheets

1a// Gather all 2x6 (8) and assemble as shown

1b// Fasten precut plywood to frame

2 // RIBS

MATERIALS:
4 qty pre-glued rib legs
4 qty pre-glued arch beam

2a// Fasten these three components until you have a total of 4x Ribs

2b// Slide each rib into the slots on the base
**3 // END WALLS**

**MATERIALS:**
- 2 qty pre-glued wall panels
- 2 qty windows cut out of wall material
- 1 qty accessible and personalized door

3a// If not pre-assembled. Glue walls and doors as shown.

3b// Assemble and fasten to base as shown.

**4 // DOORS & WINDOWS**

4a// Add hinges on the side where the letter H is marked. Add hardware if applicable.

**5 // RIDGE BEAM**

**MATERIALS:**
- 1 qty pre-notched ridge beam

5a// If not pre-assembled. Glue two ridge beams together to make it stronger.

5b// Slot in ridge beam.
6 // TENT

MATERIALS:
1 qty insulated canvas fabricated by Denver Tent
36 qty canvas hooks

6a// Tightly hook tent on all sides for a tight enclosure.
FEEDBACK

Any ideas, comments or suggestions?
Please leave your feedback by scanning the QR Code below:

SPECIAL THANKS

Colorado Village Collaborative
BUILD by Radian
AIA Colorado
Denver Tent
University of Colorado Denver Campus
College of Architecture and Planning
faculty & staff
CAP Fabrication Lab
Ethan Solomon from Solodome Production (photo & video)

All volunteers that have offered their professional services and manual labor.

THANK YOU!

For more information please visit aiasdenver.org/freedom-by-design