# The Catio

at

# Nahimana Forest Kitten Rescue

*Plans and Considerations*

Thank you for supporting Nahimana Forest through your purchase of these catio plans. A percentage of plan sales goes directly to the rescue for support and care of these deserving feline friends. We're grateful for you!

Please consider:

*Safety First!* - Our catio is a substantial structure constructed with the same dimensional lumber used to build decks and other outdoor structures. That said, it was designed to be used by cats rather than people. As needed, an adult enters our catio for cleaning or retrieving toys that cannot be reached from the window entry. If your cats intend to share this space with their humans, please have these plans reviewed by a licensed contractor who can advise on options for attachment to your home and anchoring the posts.

*Dimensions:* When we designed our catio, we did put some thought into its scale compared to the size of the cat cottage to which it was to be attached. As an example, the height and width were drawn with consideration of the window that would be used for access. That location also determined how high off the ground our catio needed to be. These plans provide a materials list and step-by-step instructions for assembly. Before you begin construction, please consider the window the catio will surround and determine whether you will need to change any dimensions - especially of the 4x4 posts that support the outside corners.

*Lumber, Roofing & Finish:* We used pressure treated lumber for our construction, though, as we finished the catio with two coats

of exterior paint and have no direct ground contact, we could have used non-treated material. You might consider other options as well - Cedar, as an example, if you prefer the look, or if it better blends with the design aesthetic of your home.

We chose corrugated metal roofing as it coordinated with the roof of our cat cottage. It also went up more quickly and added less weight than had we used plywood sheathing and asphalt shingles. Clear polycarbonate panels would be another lightweight option that would let in more light… many options!

*Power Tool Safety:* Our plans list the tools we used to cut and assemble the materials that make up our catio. Before using any power tool, please make sure you are familiar with its operation and follow all safety guidelines provided by the manufacturer.

*Our Drawings:* Our images are *roughly* to scale - meaning, should you build a catio for your feline friends using these dimensions and instructions, it will look very much like the pictures and drawings within. That said, some of the dimensional lumber in the drawings are not perfectly to scale.

We hope you enjoy creating this special place for your feline friends. The majority of the kittens here at Nahimana Forest spend a large part of their day in theirs! We'd love to see pictures of yours when completed!

Tools:

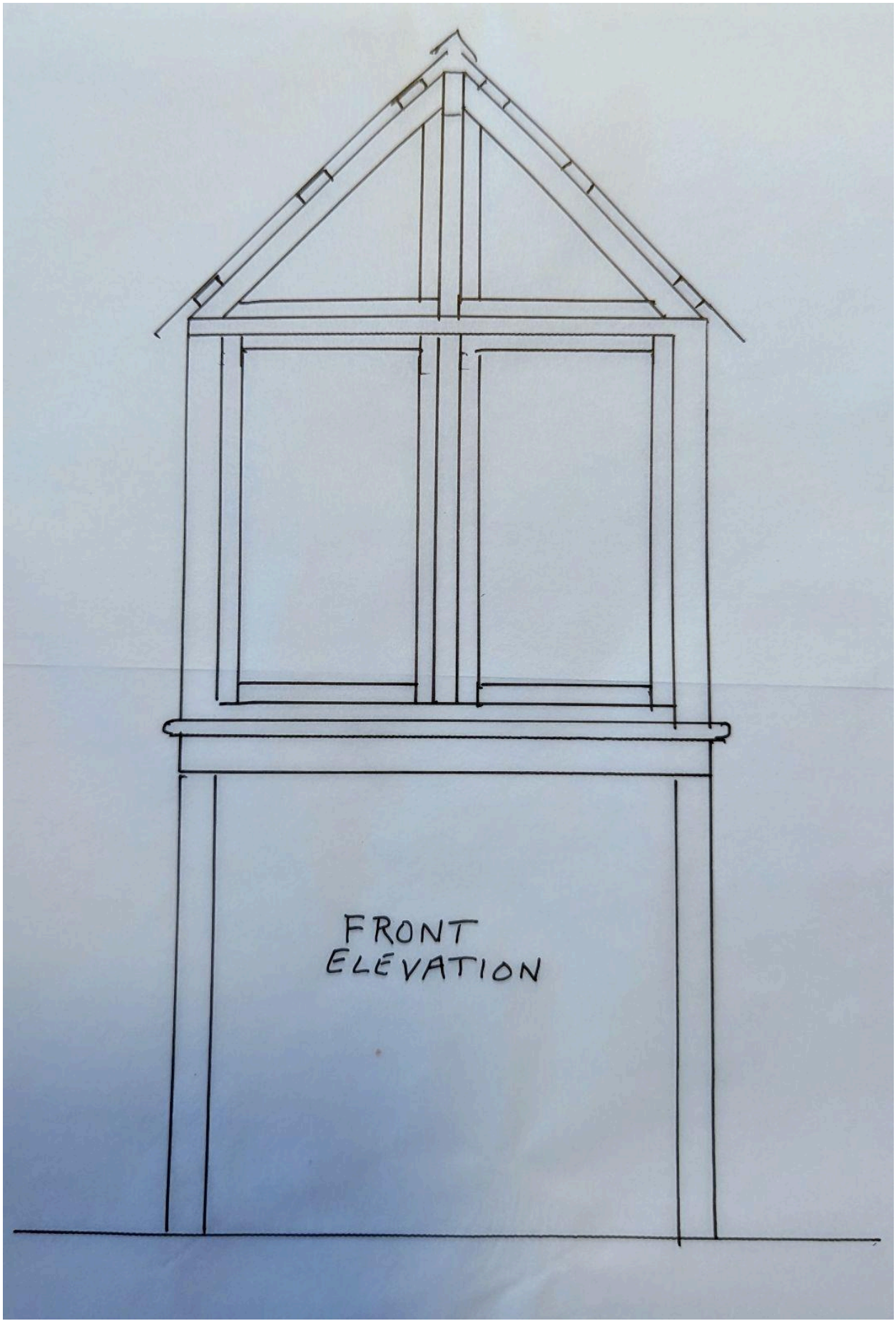
Drill/Driver
Circular Saw or Miter Saw
Speed Square
Framing Square
Pencil
Hammer
Chisel
2’ & 4’ Levels
Safety Glasses / Hearing Protection

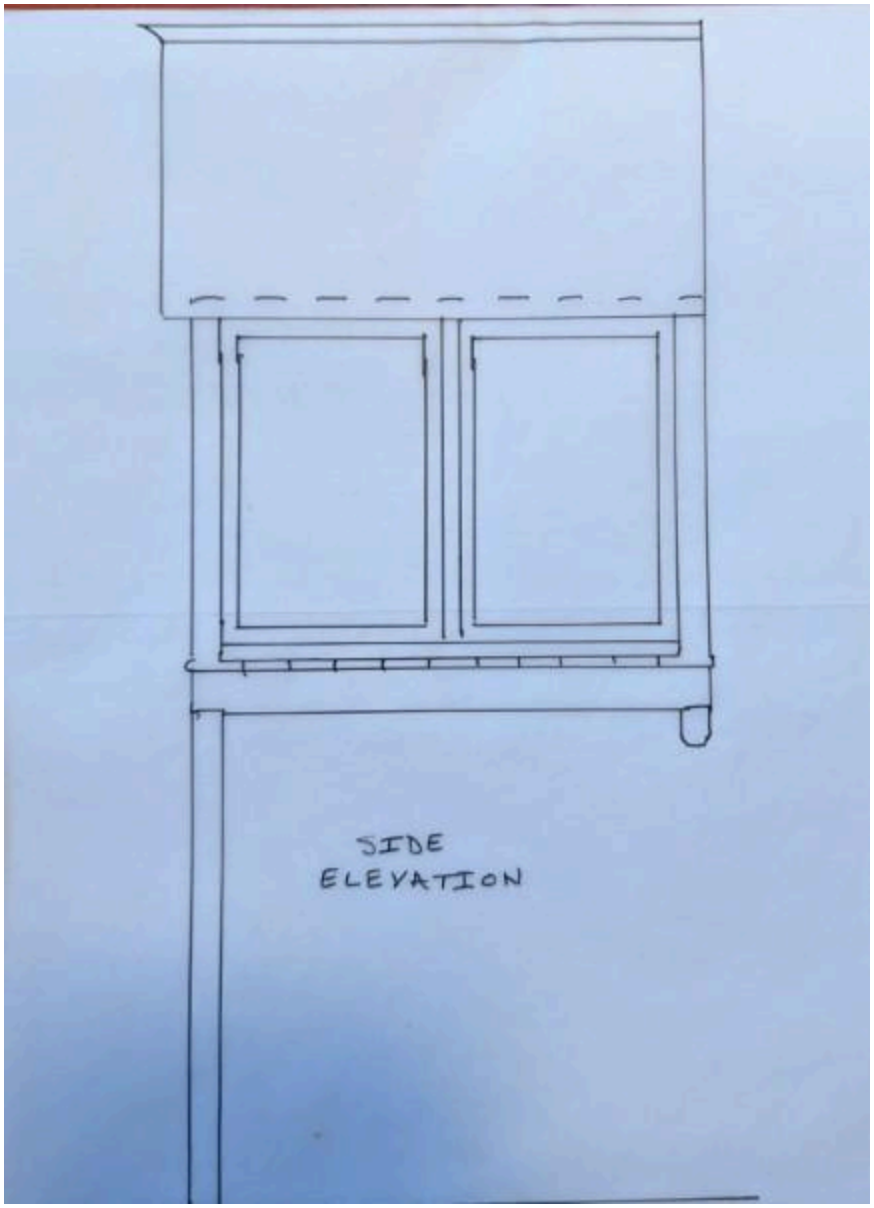
Materials List:

| Material | Quantity | Cost* | Total* |
|---|---|---|---|
| 4 x 4 x 10 | 3 | $14.78 | $44.34 |
| 2 x 6 x 8 | 5 | $6.78 | $33.90 |
| 2 x 4 x 10 | 4 | $6.38 | $25.52 |
| 2 x 4 x 8 | 6 | $5.08 | $30.48 |
| 2 x 2 x 8 | 28 | $3.68 | $103.04 |
| 1 x 4 x 8 | 6 | $4.18 | $25.08 |
| 1 x 6 x 8 | 1 | $5.48 | $5.48 |
| 5/4 x 6 x 12’ | 6 | $9.58 | $57.48 |
| 5/4 x 6 x 8 | 3 | $6.18 | $18.54 |
| ¼” Hardware Cloth 36” x 10’ | 3 | $18.92 | $56.76 |

| | | | |
|---|---|---|---|
| Roof Panel 2.16 x 8 | 3 | $19.98 | $59.94 |
| Roof Ridge | 1 | $32.98 | $32.98 |
| HeadLOK 4 ½” Screw | 5 | $1.98 | $9.90 |
| HeadLOK 2 ⅞” | 1 box | $24.98 | $24.98 |
| HeadLOK 6” | 4 | $2.48 | $9.92 |
| 3” Deck Screws | 1 lb | $9.78 | $9.78 |
| 2 ½” Deck Screws | 5 lb | $35.98 | $35.98 |
| 2” Deck Screws | 1 lb | $9.78 | $9.78 |
| 1” Roofing Screws | 1 box | $14.98 | $14.98 |
| Estimated Total (pre tax) | | | $608.86 |

*Cost estimates were taken from Lowe’s Home Improvement website on 11/30/2023 and are to provide rough estimates only.


FRONT
ELEVATION


SIDE
ELEVATION

**Instructions:**

***Step 1: Assemble the floor joists and set the corner posts.***

Gather:

- 2x6x62” - 2 each
- 2x6x69” - 2 each
- 2x2x54 ¾” - 2 each
- 2x4x66” - 2 each
- 4x4x55 ½” - 2 each
- 4x4x10’ - 2 each
- 2 ½” deck screws
- 3” deck screws
- 4 ½” HeadLOK screws
- 2 ⅞” HeadLOK screws

- Assemble the ledger board and band joists - essentially a box that the rest of the structure will be built upon. See Figure 1 (The ledger attaches to your house and the other three boards are the band, or rim, joists.) Use three 3” screws at each corner. We built this frame on the ground and lifted it in place, supporting it with two temporary braces at the outside corners, and, after leveling, secured it to the cottage structural members with 4 ½” HeadLOK screws.

- **Your attachment system will depend upon the exterior finish of your home and to what structural members you’re attaching the ledger. Prefer not to drill into your house? Please see another consideration at the end of these plans.**

- Gather the 4x4 corner posts, measuring down from the top of each post, mark a line at 46 ½” and 52”. Carry this line across 2 adjacent surfaces. The area in between these lines will be removed to a depth of 1 ½” - these will be the notches that accept the outside corners of your joists. We cut our notches with a circular saw with the blade set to a depth of 1 ½”, and cleaned them up with a chisel. See Figure 2

*Note: Leave the lower section (below the notch) of the two outer 4x4’s long until their final length is determined in the steps below.*

- Working from the inside of the joist framing, slide each of the notched 4x4x55 ½” posts over the inside corner of the ledger and rim joist. Plumb posts and secure to the joists and your house using HeadLOK screws or similar.

- Determine how your outside posts will meet the ground. (We used concrete deck post blocks but they could also be buried below the frost line and set in concrete.) Check your rim joists for level, adjusting your temporary bracing as necessary. Determine the distance from your ground attachment point and the bottom the rim joists at each corner. Trim the bottom of the 4x4s and attach to the inside corners of the rim joists using HeadLOK screws or similar.

- Measure down 3 ½” from the top of the ledger board and the opposite rim joist. Mark a line and fasten a 2x2x54 ¾” cleat between the 4x4 posts with 2 ½” deck screws. This cleat will support the 2x4x66” floor joists. Set the 2x4x66 joists on the

cleats with 17 ¼” spacing and secure with 3” deck screws. See Figure 3

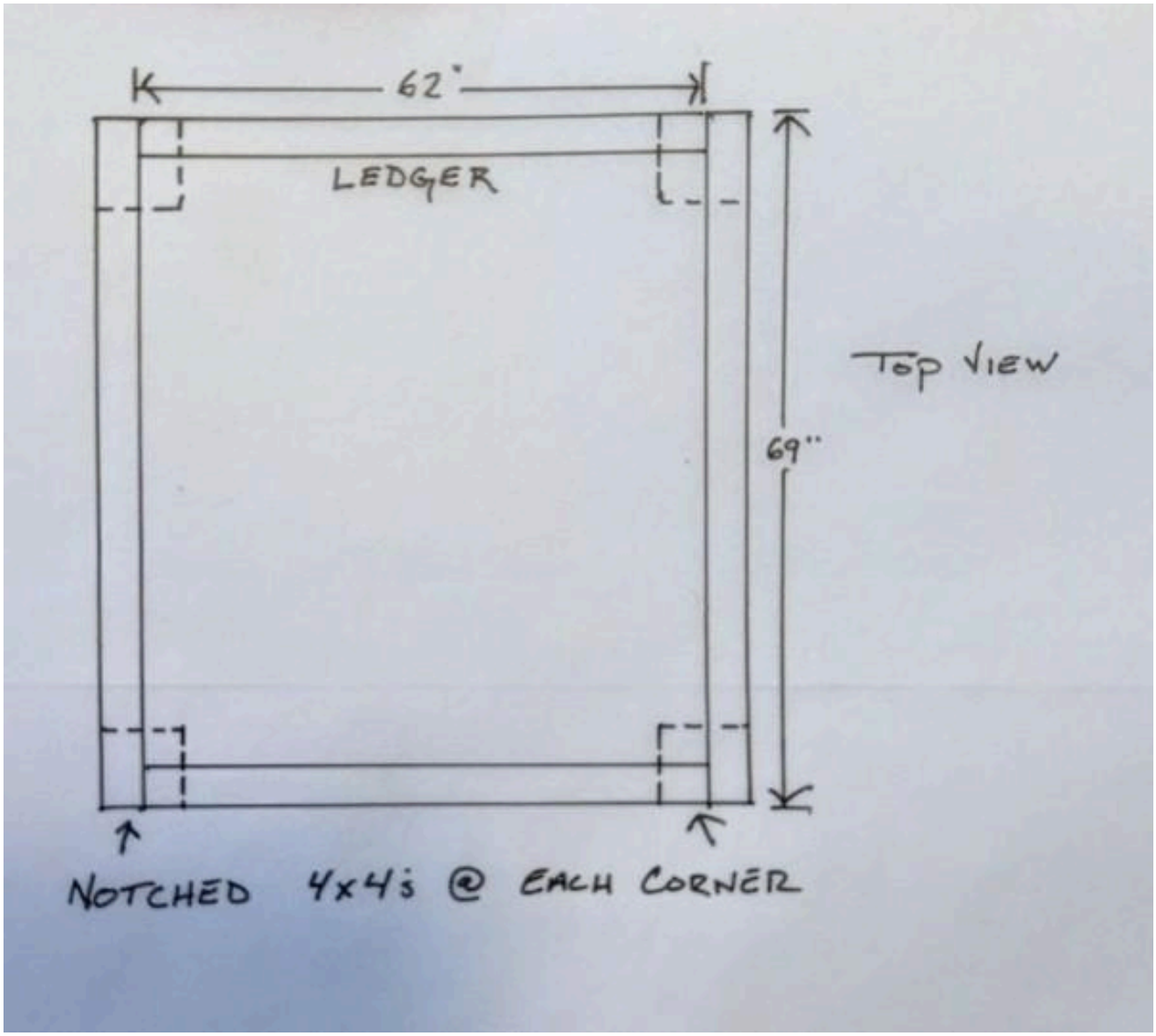



Figure 1

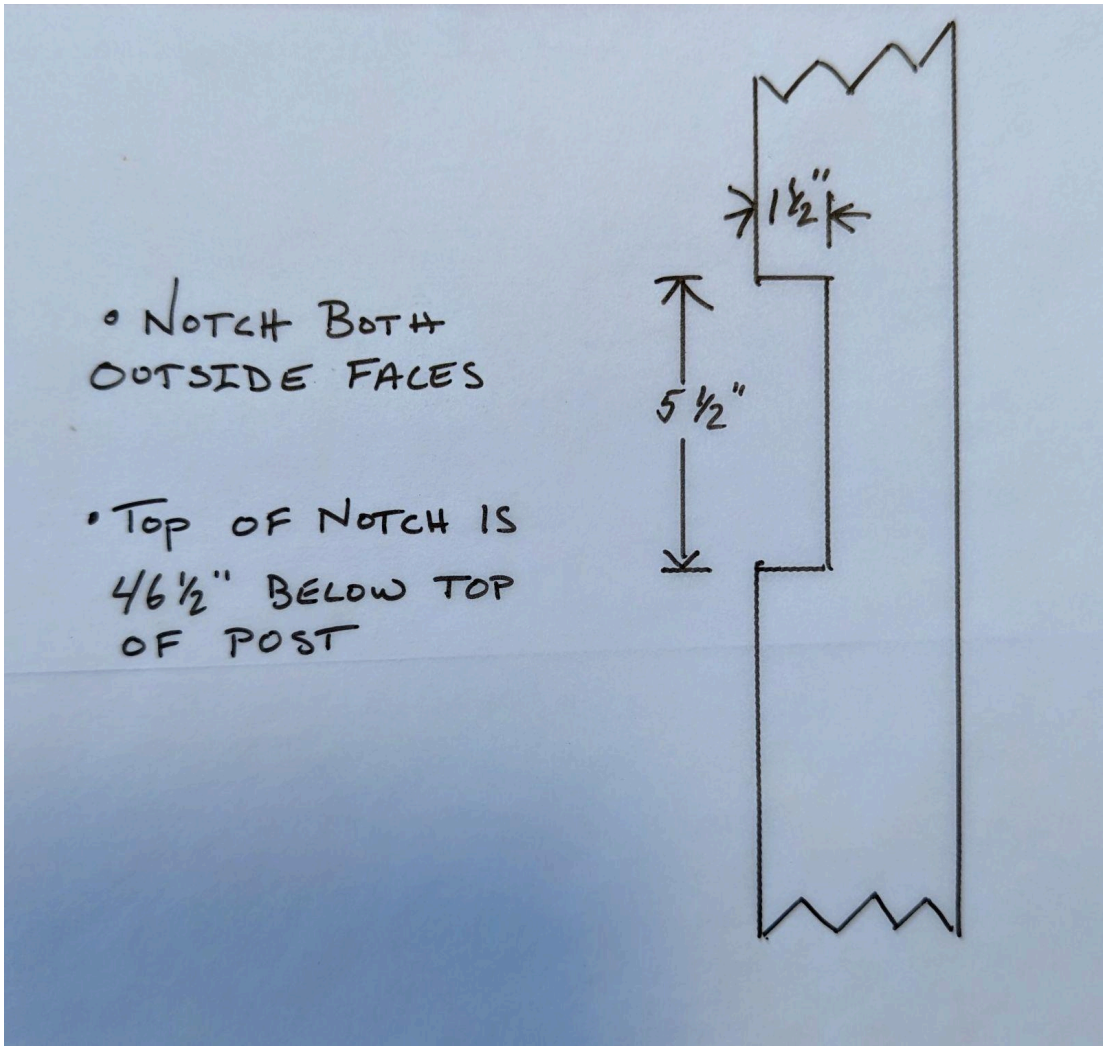

• NOTCH BOTH OUTSIDE FACES
• TOP OF NOTCH IS 46½" BELOW TOP OF POST
1½"
5½"

Figure 2

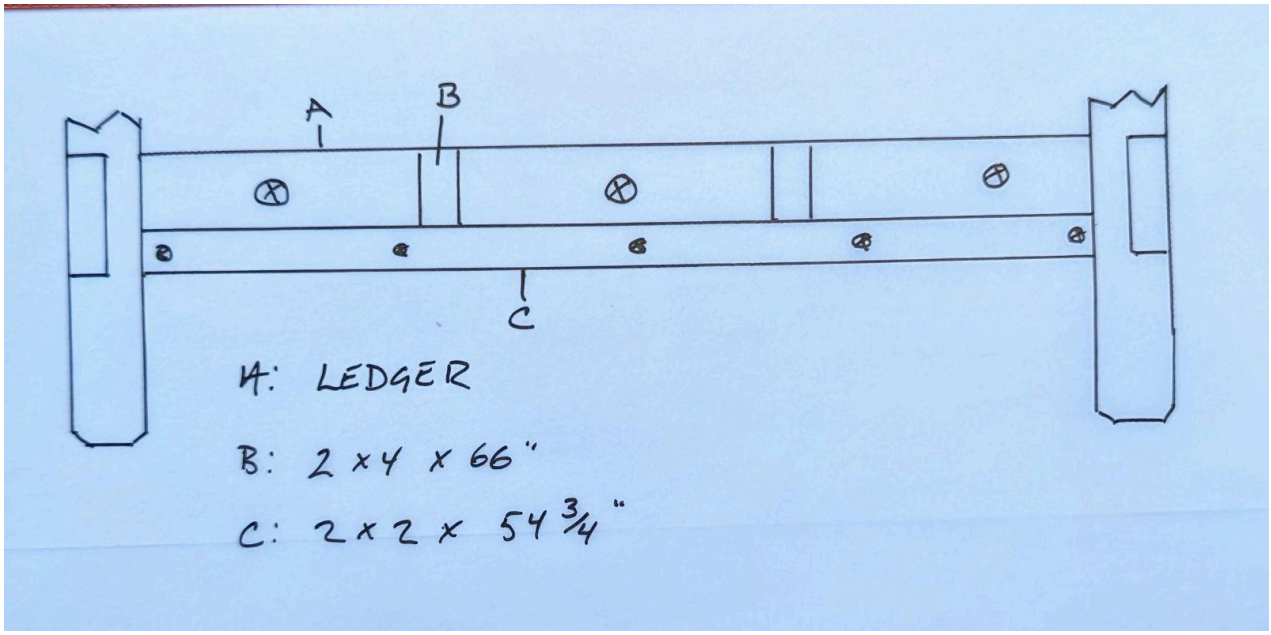



Figure 3

***Step 2: Cut and fasten the deck floor boards.***

Gather:

5/4 x 6 x 12’ deck boards - 12 each
2” deck screws

- Starting from the ledger side, lay the deck boards perpendicular to the floor joists and secure to each joist using 2” deck screws. Leave a ¼” gap between each board and cut notches on the first and last boards to fit around the corner posts. (If using pressure treated lumber that is still very wet, close your gap to an ⅛” as the boards will shrink across their width as they dry.)

***Step 3: Cut and frame the wall sections.***

Gather:

- 2x4x69” - 2 each
- 2x4x62” - 3 each
- 2x4x55” - 1 each
- 2x4x42 1/2” - 3 each
- 2 ½ and 3” deck screws

- The front and side wall sections are framed with 2x4’s and create the openings that will accept the screened panels in the steps below. See Figures 4&5

- Beginning with the top plates, cut two 2x4x69” and one 2x4x62”, fasten these to the corner posts with 3” deck screws. The joints atop the outer posts will require a half lap joint.

- Cut two 2x4x62” and one 2x4x55” for the bottom plates and fasten these atop the deck boards between the corner posts with 2 ½” deck screws.

- Find and mark your centerline on the top and bottom plates of each opening, fasten a 2x4x42 ½” stud in the center of each opening.

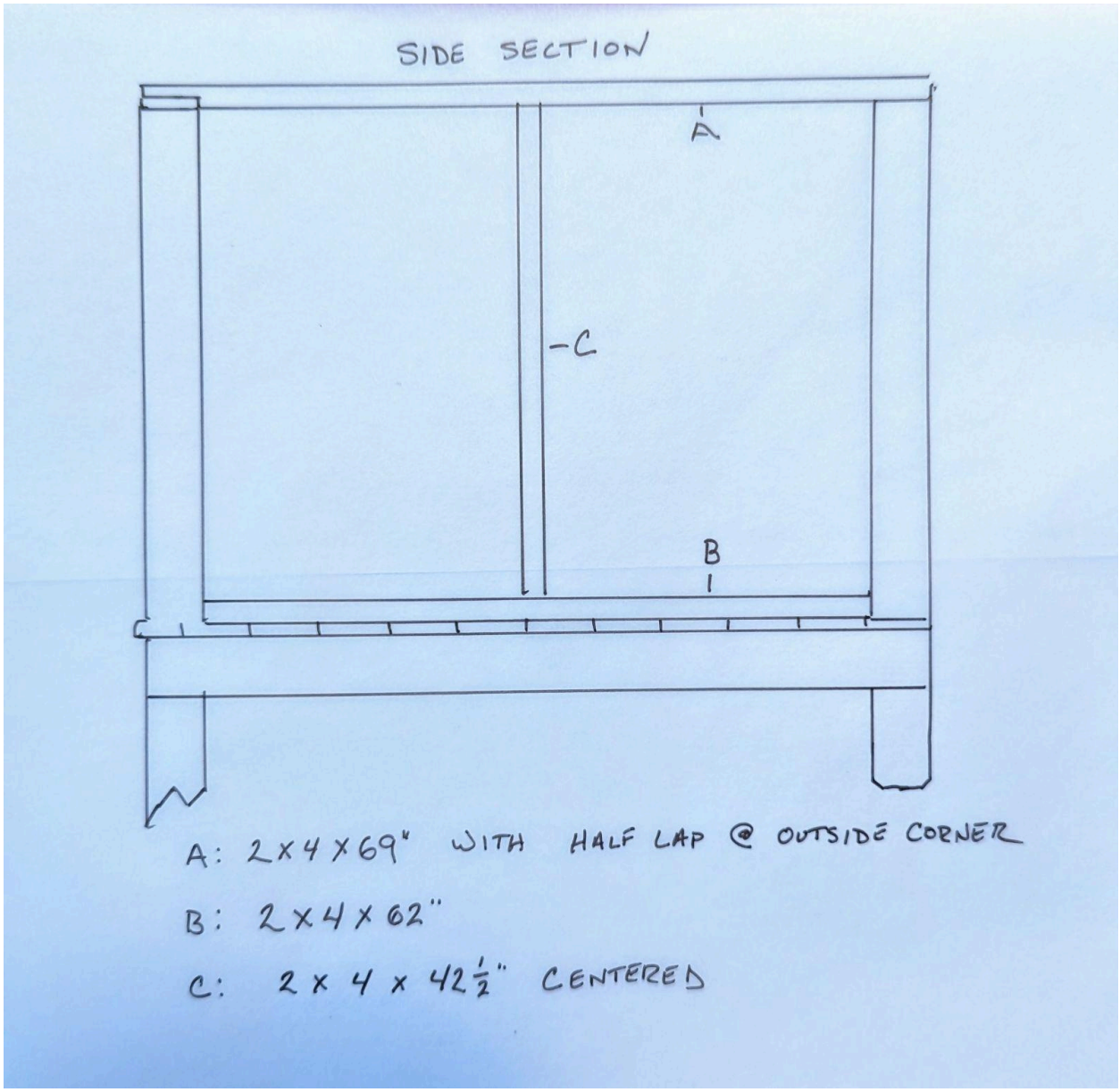

SIDE SECTION
A
C
B
A: 2x4x69" WITH HALF LAP @ OUTSIDE CORNER
B: 2x4x62"
C: 2 x 4 x 42 1/2" CENTERED

Figure 4

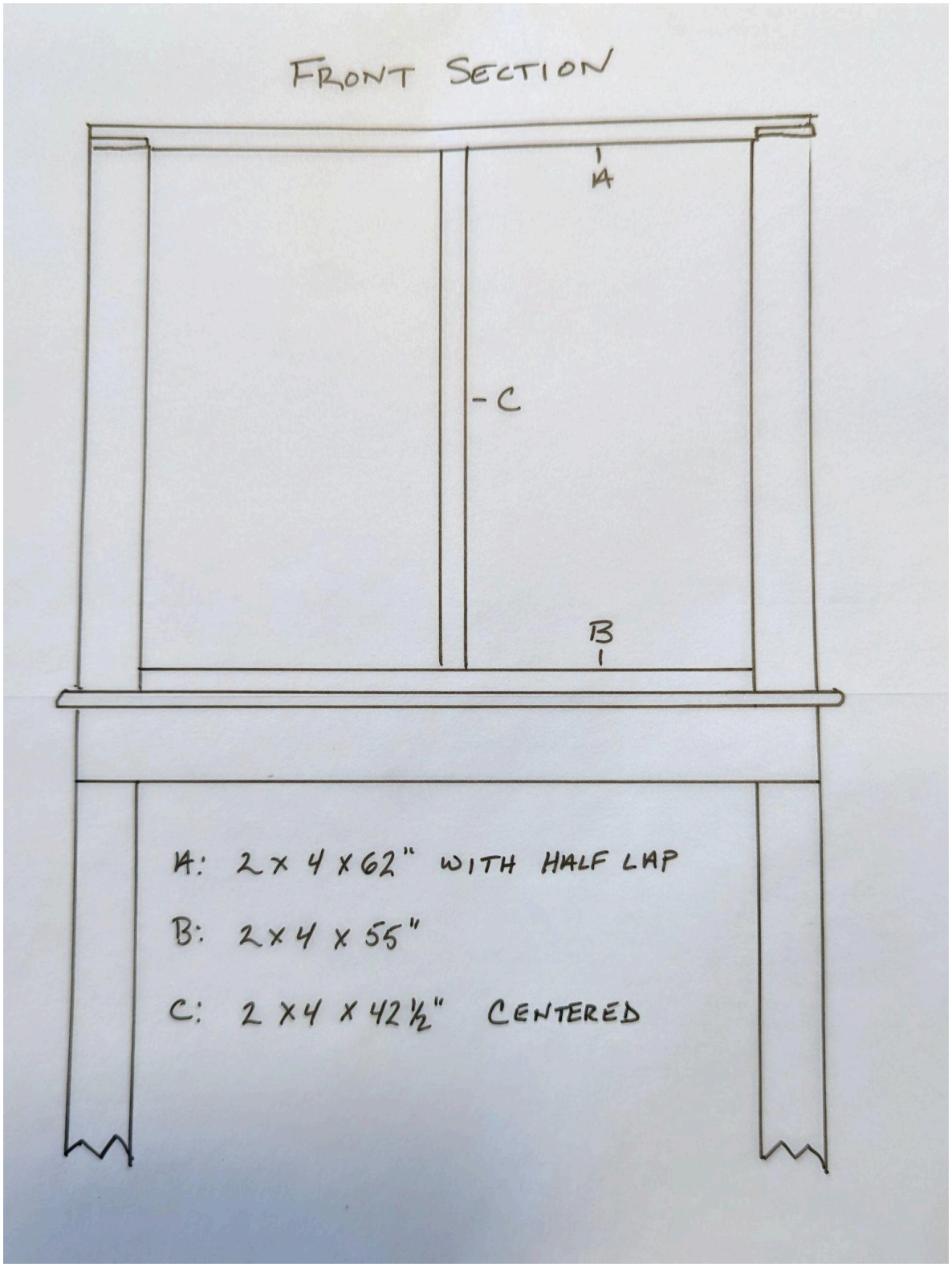

FRONT SECTION
A
C
B
A: 2 x 4 x 62" WITH HALF LAP
B: 2 x 4 x 55"
C: 2 x 4 x 42½" CENTERED

Figure 5

***Step 4: Cut and assemble the screen sections.***

Gather:

- 2x2x8’ - 24 each
- 2” deck screws
- Hardware Cloth

- The screen panel sections consist of 2x2’s secured inside the openings of the wall sections. (Please check the measurements of your openings and adjust lengths as necessary.) Once your 2x2’s are cut to length, screw the first four around the inside perimeter of the wall section. Set them ½” in from the outer edge using 2 ½” deck screws and fasten them through the top. See Figure 6

- Note: The screen sections in the gable end of the roof will go together in similar fashion with a slight variation. Those details will be shared below after you have your roof completed.

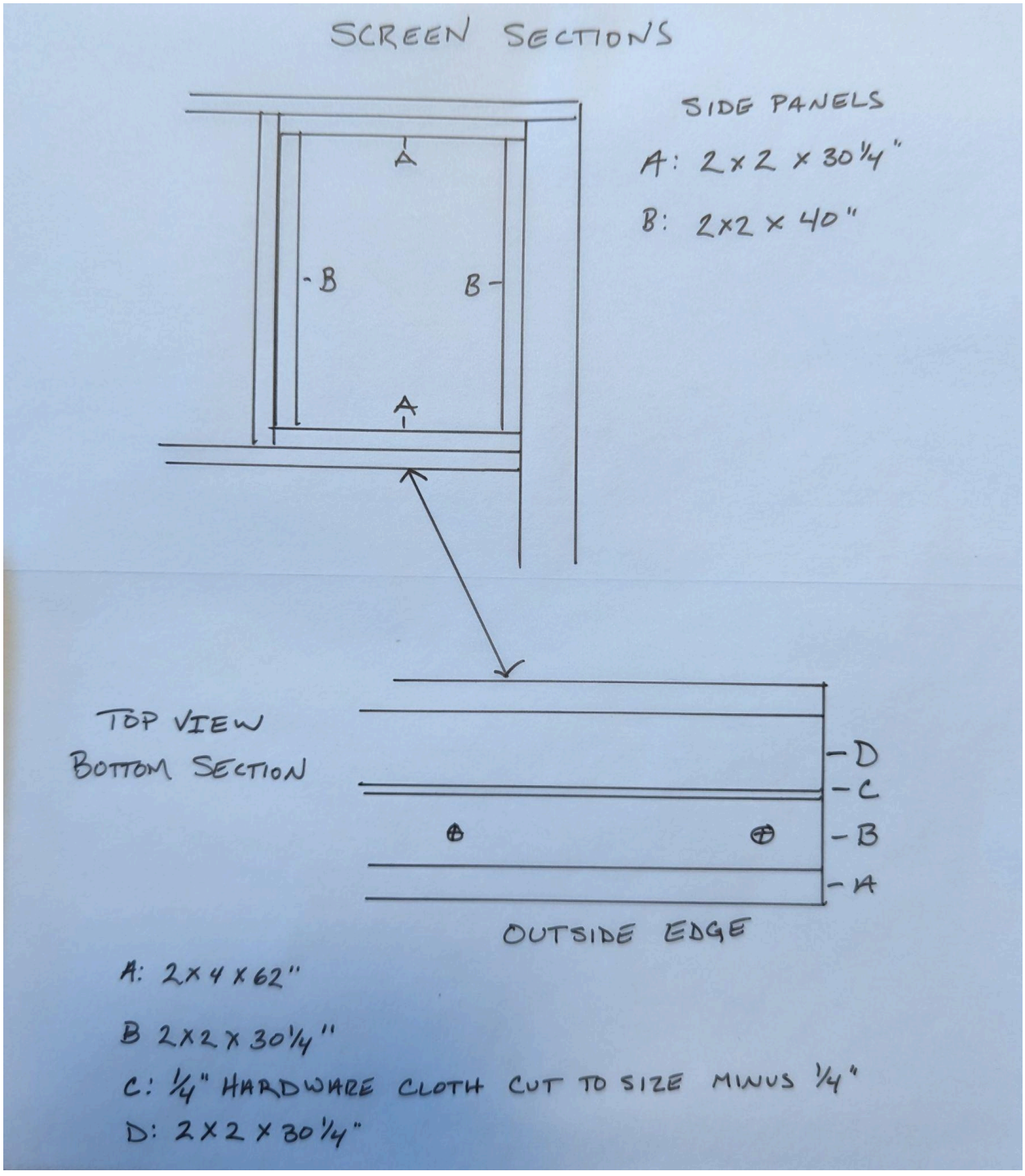



Figure 6

- Cut a hardware cloth panel to fit within this opening - make the panel ¼” less than the length and width. (Tip: Hardware

cloth edges will be sharp - gloves will be helpful. Once cut, the panel will want to roll back onto itself. Carefully rolling it in the opposite direction will help flatten it and make it easier to work with.) Place the hardware cloth panel into the opening you've just framed - working from the inside of the catio. Beginning with the top, use 2" deck screws to fasten a 2x2 to the corresponding 2x2 you attached in the previous step. You'll be pinching the hardware cloth between the two 2x2's. Repeat for the bottom and then the sides. (Though the hardware cloth will be secure when pinched between the 2x2's, the deck screws will keep them very secure.) Repeat this process for the other 5 openings.

***Step 5: Assemble the roof section. See Figure 7***

- Gather the 2x4x25 ½" (post) and 2x6x71" (ridge beam) and a joist hanger. Find and mark the center of the top plate of the front wall section and toe screw the post to the top plate at your centerline mark.

- Find and mark the center of the wall (of your house) between - and level with the top of - the two back corner posts. Using a level, extend the center point up the wall 25 ½" from the plane created from the top of the posts. This mark will identify the position of the bottom of the joist hanger - fasten it to your wall. Rest one end of the ridge beam in the joist hanger and the opposite end atop the post, secure with deck screws.

- Gather six 2x4x44" rafters. (When cutting each end at a 45 degree angle, the 44” measurement represents the long edge of the 2x4.)  Using 3” deck screws secure the rafters to the ridge beam and the top plate of the side wall sections. The tops of the outer rafters will set back 2” from the front of the ridge beam and the bottoms will align with the outer edge of the wall plate. Along both sides of the ridge beam and the top plate of the walls, measure back 31 1/4" from the inside of the first rafters and mark a line. Fasten the next set of rafters, aligning the outside edge with these marks. Repeat with the next set of rafters. (Note: the rafters closest to your house will fall 2” off the wall so as not to interfere with the joist hanger securing the ridge beam.

- Gather six 1x4x71” purlins. From the peak of each rafter, measure down and mark lines at 1”, 20 ¼”, and 39 ½”. Align the upper edge of your purlins to these lines and fasten to the rafters with two 2” deck screws at each rafter.

- Cut the corrugated roof panels in half across their widths, ending with 6 panels at 4’ x 2.16’. Starting against the house, align the first panel with the top edge of the top purlin and secure with roofing screws through the top of every third corrugation and into each purlin. When overlapping corrugations, make sure to screw through the overlap.  Once completed, cut the ridge roll to length and fasten with roofing screws to the upper purlins of each side. (Note: Typically, any roof structure that meets the side of a house would be flashed to redirect rainwater. As our goal was to provide protection and shelter for our rescue kittens and cats, we did

not cut into our siding to flash the roof of the catio. We left an ⅛” gap between the edge of the corrugated roofing panel and the siding of the cat cottage.)

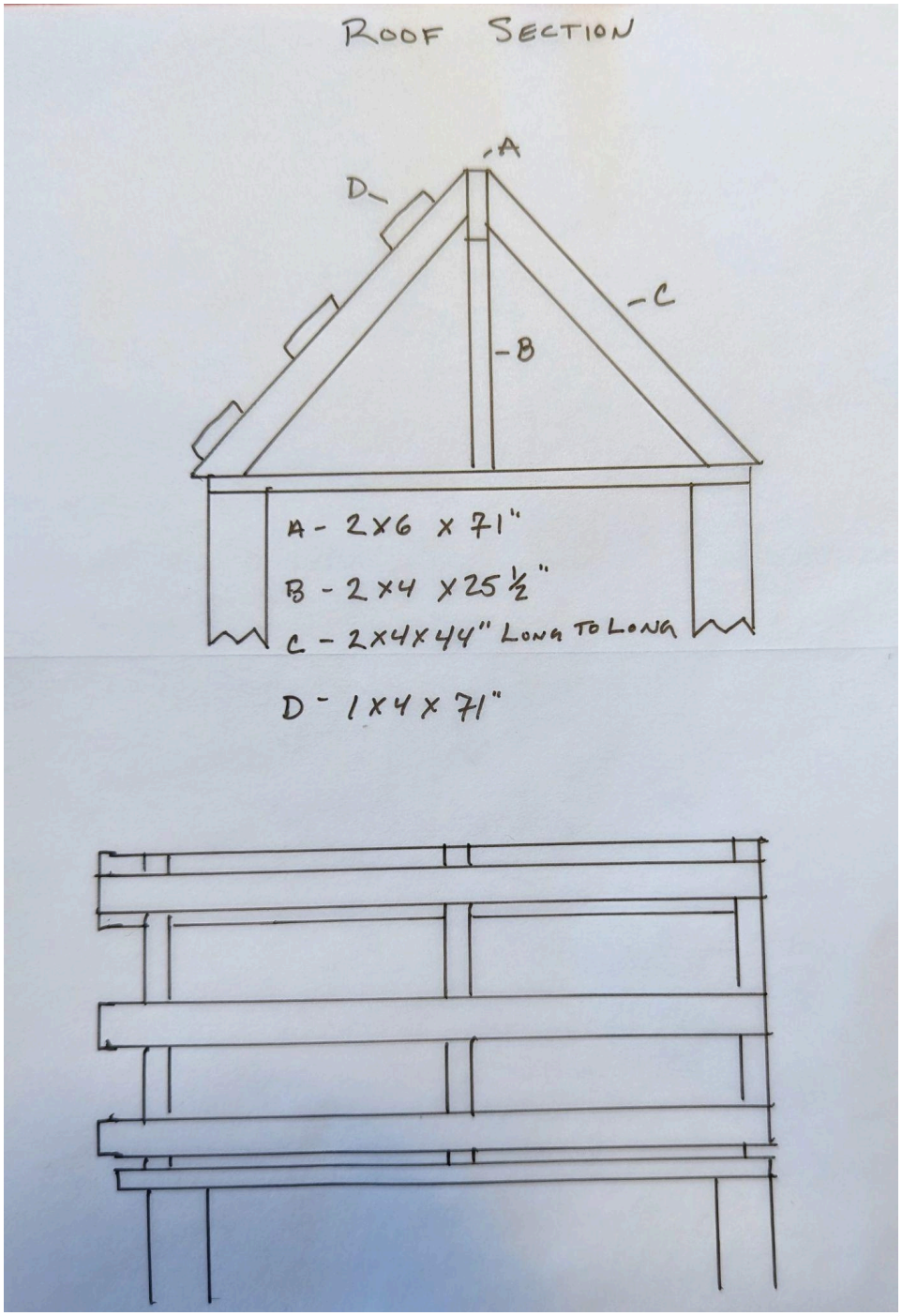



Figure 7

**Step 6: Gable end screen sections.**

Gather:

- Hardware Cloth
- 2” deck screws
- 2 x 2 x 26 ½” - 4 each
- 2 x 2 x 28 ⅝” - 4 each
- 2 x 2 x 29” - 2 each

- The screen sections in the gable end are very similar to those in the wall section - the hardware cloth will be pinched between the “frame” made of 2 x 2 lumber. In this case, though, the rafter will act as the outer frame along the hypotenuse edge of the right triangle opening. See Figure 8.

- As with the screen sections for the walls, be sure to check your measurements for any variations that may have happened in cutting along the way.

- When assembling these screen sections, pieces A & B will be aligned with the interior edge of the rafter and fastened to the post and top plate with 2” deck screws. Cut the hardware cloth to cover the opening and then fasten pieces A, B, and C to their mates as seen in Figure 8.

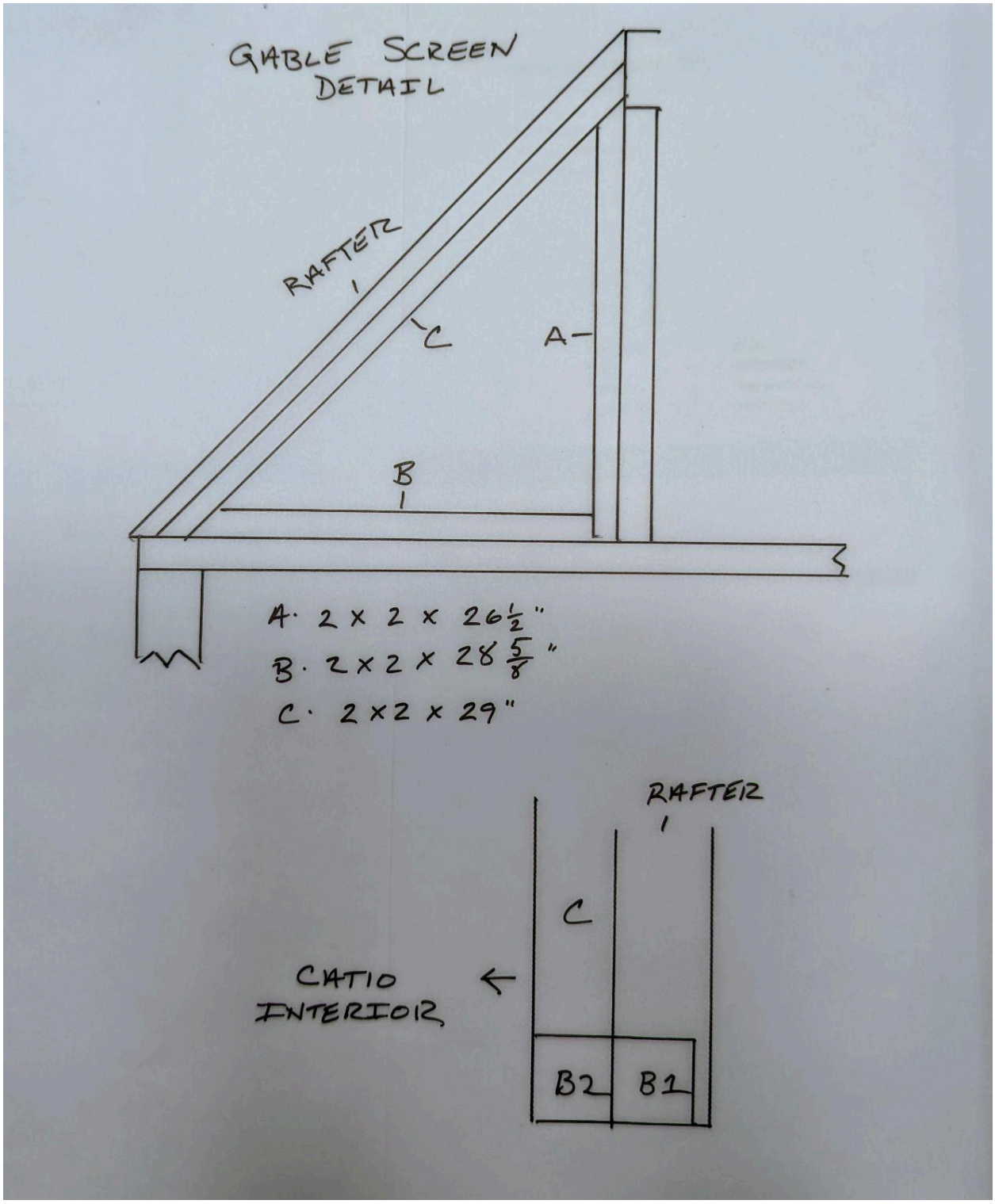

GABLE SCREEN
DETAIL
RAFTER
1
C
A
B
1
A. 2 x 2 x 26 1/2"
B. 2x2 x 28 5/8"
C. 2x2 x 29"
RAFTER
1
C
CATIO
INTERIOR
B2
B1

Figure 8

***Step 7: The Loft.***

Gather:

- 5/4 x 6 x 55” - 3 each
- 5/4 x 6 x 16 ½” - 1 each
- 2 x 2 x 16 ½” - 3 each
- 1 ½” or 2” Deck Screws

- The loft is placed at the same level of the top plates of the wall sections and consists of three 5/4 x 6 x 55” deck boards, two 2 x 2 x 16 ½” cleats, and a center support made from a 16 ½” deck board and a 2 x 2 brace.

- From the outer corners of the left and right wall top plates, measure and mark a line 1” down from the top plate. Fasten a 2 x 2 x 16 ½” cleat below this line on each side with 2” deck screws.

- Using ¼” spacing, place the deck boards atop the cleats and secure on each end with two 2” deck screws. Find and mark the center of the underside of the loft deck boards. Align the center support from below and secure with 2” deck screws. (Note: The thickness of a 5/4” deck board is actually 1”, so please be careful not to set these screw heads or you risk having the points break through your loft floor. You can either use a shorter screw, or drive them in at an angle to avoid penetrating the loft floor surface.) Cut the 16 ½” x 2 x 2 with opposing 45 degree angles at each end. Secure this brace

to the center of your loft support and the wall stud with 2 ½” deck screws. See Figure 9

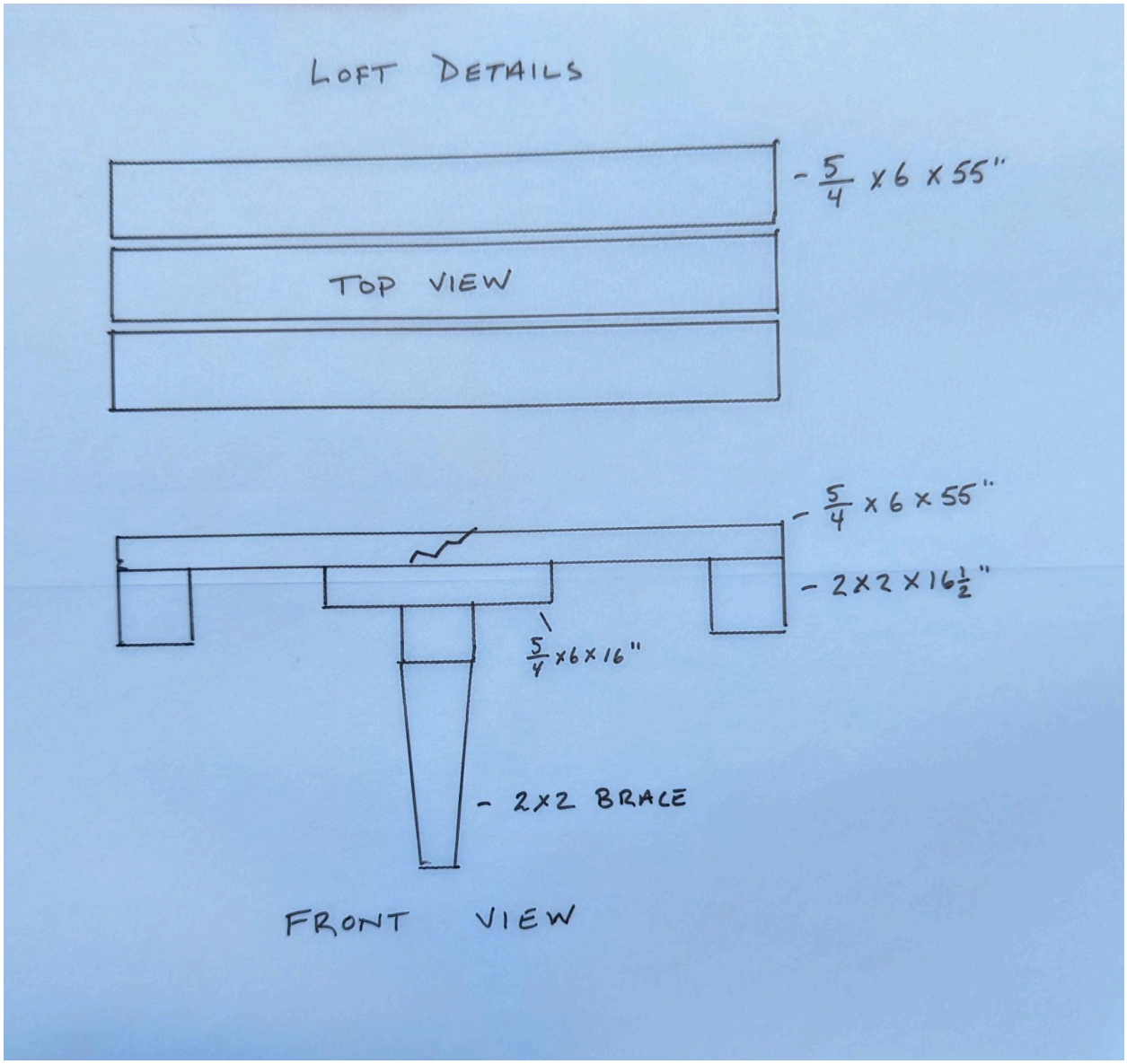



Figure 9

***Step 8: The Steps.***

When our catio was first constructed, the kittens in our rescue at that time were a bit older - we had several in the 6-8 month-old range and a few that were full grown. The adult cats could readily jump from the deck floor to the loft - about 43” - but that was a bit high for the younger ones. We had a wooden box that we set in the center of the catio floor and this was perfect.  As kitten season arrived, so did the tiny friends in the 4-6 week old range. We don’t give kittens access to the catio until they’re eight weeks old - even then, they could not make the leap to the loft. This realization was what brought about the idea for some stairs. Depending on the ages of your feline friends, you might stack some wooden crates, or something similar, if you don’t want to commit to stairs.

Gather:

- 1 x 6 x 7 ¼” - 7 each
- 1 x 6 x 4 ½” - 7 each
- 1 ½” Deck Screws
- Braces - 4 each as in Figure 10

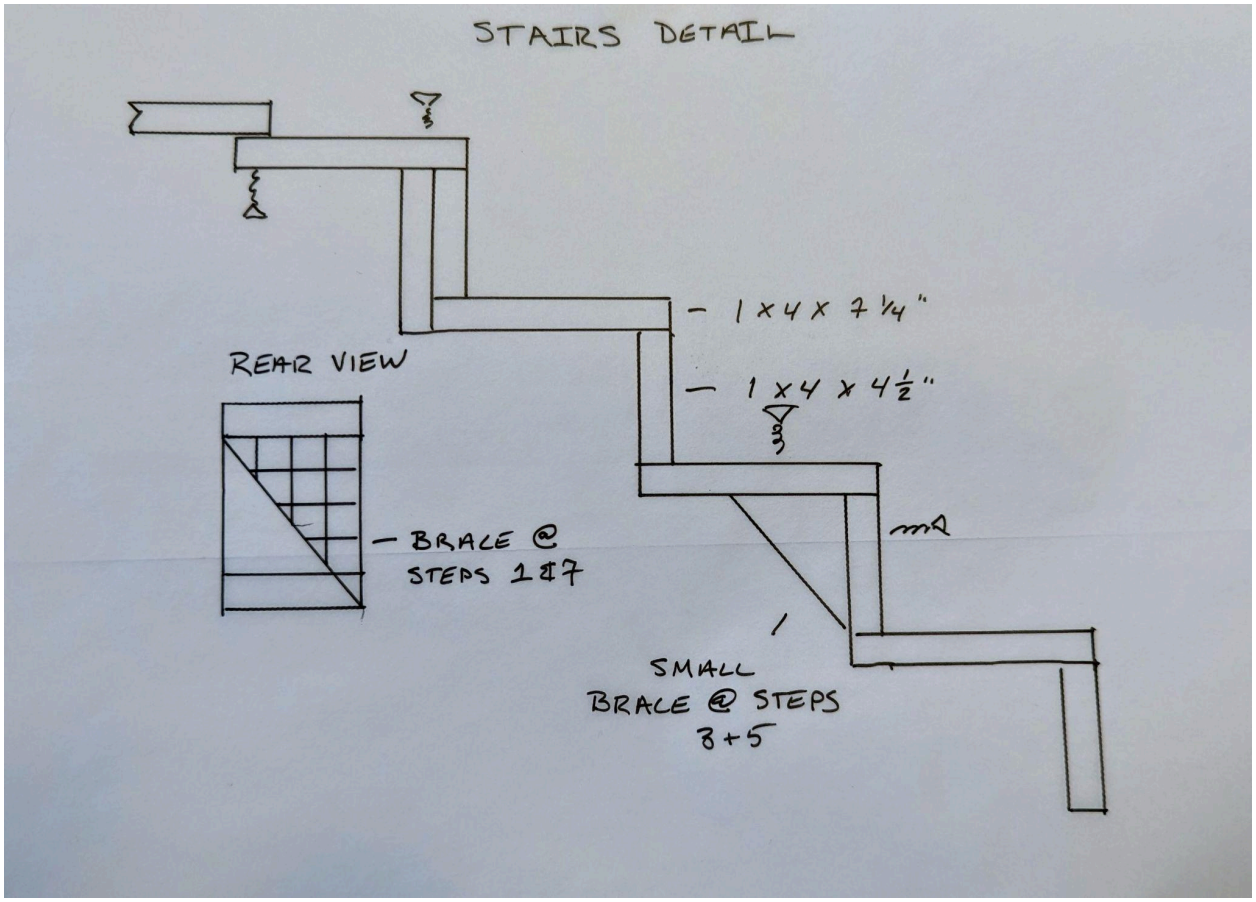



Figure 10

- In the back of each riser, drill 4 pocket holes (two at the top, and two at the bottom) in the back side of each riser. Using Figure 11 as a guide, glue and screw the first riser to the bottom of the first tread and the top of the second tread. Repeat for all seven stairs.

- The two larger braces are placed flat against the back of the first and seventh risers. Apply glue to the top edge and fasten with two 2” deck screws through the top of the tread.

- The two smaller braces provide support under the 3rd and 5th treads. Glue and screw these through the center of the tread and riser.

- Let the glue set up overnight.

- Position the stairs - your attachment points will be the underside of the outermost loft board, the center stud of the wall section, and the 2 x 2 screen frame closest to your home. Using two 1 ½” or 2” (at an angle) deck screws, attach the first tread to the underside of the front of the loft floor. Using 2 ½” deck screws, attach the large braces to the sections mentioned above. (Note: If you're having trouble screwing through the braces, drilling a pilot hole can be helpful.)

***Additional considerations:***

- Our kittens access their catio through a cat door set into a wooden panel. When we “open up the cottage” each morning, we open the lower sash of the window and secure the cat door panel into it giving them free access throughout the day. We remove this panel and close and lock the window each evening. Our cat door has latches on each side of the swinging door that would allow us to leave this panel in at all times while securing the swinging door to keep the kittens in the cottage. When we’ve tried this, it seems to confuse the kittens and they end up pawing at the door to try to open it. So, if the door is in, they know they can go into the catio. Often in the mornings - they jump through the window before we get the cat door panel in place. They sure love their catio and we really hope yours will, too!

- Nervous about attaching the catio to your house? You have options, one being setting the 4x4 corner posts into the ground and embedding them in concrete. The back side of the structure facing the house could have a small clearance of an 1” or so - this would keep cats in and unwanted visitors out.

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