The Loft Doc

A comprehensive guide to your first loft

This is intended for people who have never built a loft before but have some experience with an impact, miter saw, and measuring tools. If you've done a few hours at build, this is exactly for you. This will cover what wood you need, a cut list, and instructions for how to put it together. This by no means is the only way to build a loft, but is the most easily-executable, stress-free, and structurally viable design for beginners. It is easily modifiable and such many modifications will be illustrated in this document

Why to loft

In the modern East Campus, many have speculated about the need for custom-built lofts. With new institute furniture, less singles, and HRS-provided loft attachments, some believe that it is not worth it to spend your precious time cutting, moving, screwing and lifting wood to create something that can be approximated by what has been provided to you by MIT housing. I would like to first start this off with not only the practical benefits of lofting, but also why building things yourself and taking ownership of your space is important.

Practical:

Lofts provide you with many things that institute bedframes or lofts cannot. Those are:

- **Larger mattress size:** you can choose your loft based on what size mattress works for you, rather than what is handed to you by the institute. Most people tend to make lofts for Full, Full-xl, or Queen sized beds, which are significantly larger than Twin-xls and can much more comfortably fit more than a single person. The loft design in this document is for a full size bed, but can be easily adapted to any size.
- **Height precision:** institute furniture can only be set to particular height steps, and are often not ideal for many people. Custom lofts, however, let you choose exactly how high your loft is, making a more comfortable space that fits your needs.
- **Structural stability:** institute bedframes are extremely wobbly. This is because they have no sheer or lateral bracing, and the posts are extremely thin. When stacked on top of each other to create a loft, this issue is exacerbated as there is no rigid connection between the two end pieces. Custom lofts, on the other hand, have thick posts, with both diagonal bracing and (optionally) a lateral stabilizing piece that means custom-built furniture, even by the least skilled east camper, is likely significantly more stable than what is provided. While your institute loft will probably not fall over, it is probably going to shake, squeak, and vibrate even from the lightest of movement.
- **Comfort:** custom built lofts fit your custom needs. You can modify them, deconstruct them, edit them, add to them, and more in order to do exactly what you want them to. Institute furniture cannot do this. One example of this is the ladder: for a custom loft, you can build a custom ladder that is built to your specifications - your leg length, your ideal

steepness, your acceptable width. Institute furniture doesn't even provide you with a ladder- you must climb up the narrow, vertical pieces of the headboard, an uncomfortable and undignified experience.

Philosophical:

Lofting is part of the deep, uniquely EC tradition of taking ownership of space and making it exactly as you want it. Learning and growing requires action, and questioning conventional authority that tells you how to live your life. In a way, this is exactly what MIT means when it says “Mind and Hand” - that you need to physically do the act in order to learn, say, how to use a miter saw, impact driver, where to place a screw, how to design something for your needs. But through this act, you're also learning how to be independent. You’re learning how to take your life into your own hands and self-determine what you want outside of what anyone else can tell you.

How to loft

In order to build a loft, you should be familiar with certain tools. If you aren't, ask someone trusted to teach you how to use them. These are:

- **Impact Driver:** If you don't know the difference between an impact and a drill, you should ask someone for guidance in this project. You should also know how to pick screws depending on what you're attaching together and how.
- **Miter saw:** You should know how to safely make cuts to specific lengths and make angled (mitered) cuts.
- **Level:** this ones pretty easy, but you should know how to read a level.
- **Clamp:** These are also pretty intuitive and not strictly necessary, but very helpful.

If you have solidworks, see the ZIP file for the full cad.

Cut List

This is for a single, particular design of loft in the image above. If you want to build something different, you should make your own drawings and design. As of 2025, this is also (in the Twin XL size) the only official approved loft design. **Bolded** sections are the ones that differ based on mattress size.

wood	Twin XL	Full	Full XL
Posts (length up to you)	4x 4 by 4	4x 4 by 4	4x 4 by 4
Side girders	2x 2 by 6, 80”	2x 2 by 6, 75”	2x 2 by 6, 80”
Joist side rail	2x 2 by 4, 72”	2x 2 by 4, 67”	2x 2 by 4, 72”
Head & foot girders	2x 2 by 6, 41”	2x 2 by 6, 57”	2x 2 by 6, 57”

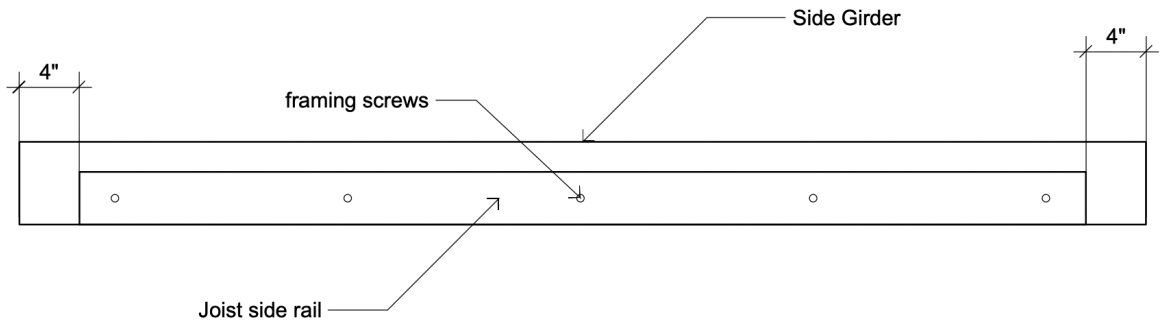
joists	9x 2 by 4, 37.5”	8x 2 by 4, 53.5”	9x 2 by 4, 53.5”
Knee braces	8x 2 by 4 @ 28” (mitered)	8x 2 by 4 @ 28” (mitered)	8x 2 by 4 @ 28” (mitered)

Notes about cut list:

1. Post length is the length from the ground to the bottom of your mattress. Before you choose this, measure your room height, your height, and know your mattress height so that you know how much space you will have above and below your mattress. Reasonable post heights are approximately 64” to 70”.
2. Knee braces should be cut to a trapezoidal (NOT parallelagram) shape. You probably wont use all 8 (depending on ladder placement, etc) but its good to have.
3. Make all cuts as accurately as possible. Minimizing error at all stages will make your life a lot easier.
4. If your loft is tall, you can optionally add a stabilization bar, connecting two posts near the bottom along the long side. This piece is a single 2x4 cut to the same length as your side girders.

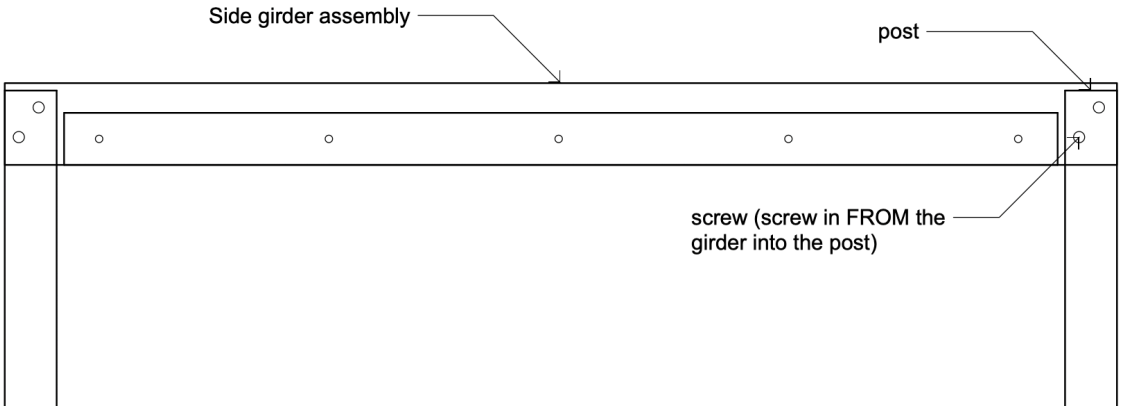
Assembly

Step 1: Attach joist side rails to the side girders.



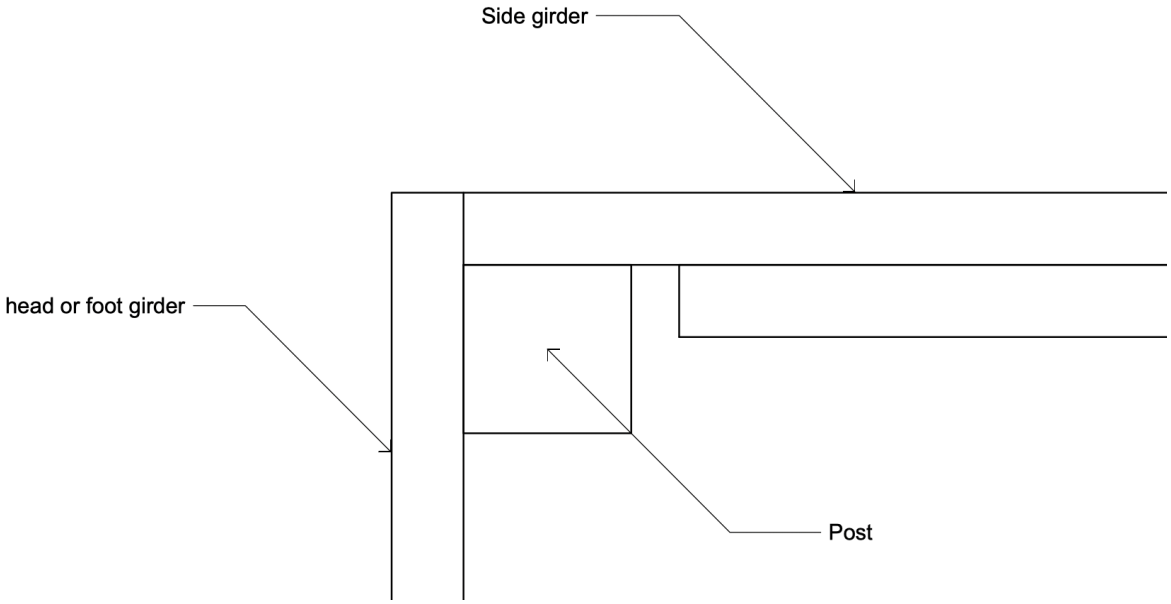
The joist side rail should be attached exactly (horizontally) centered and flush with one long edge of the side girder. This means there should be a 4” distance on both sides between the side rail and the girder. Screw in 5 framing screws connecting these two pieces. Repeat again for the second side rail.

Step 2: Raise one side



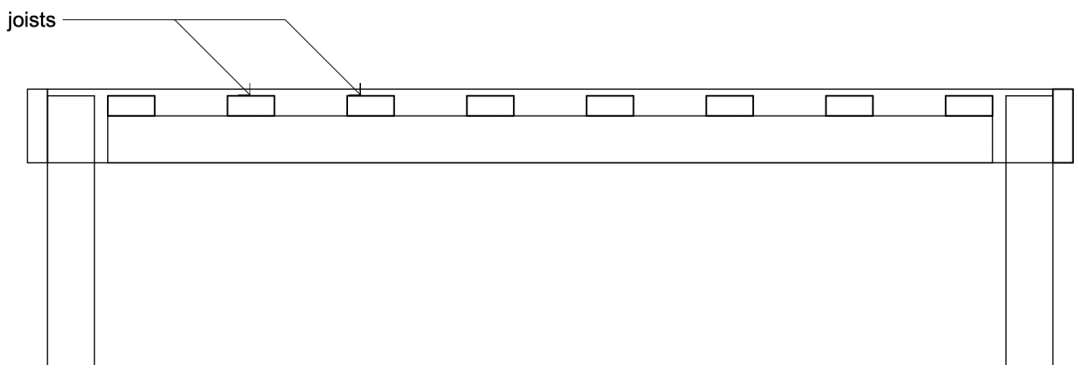
For this part, you will need a friend. Posts should align to ½” from the top of the 2x6 girder and are flush to the edge. Start on the ground - measure & attach the side girder assembly (start with only ONE screw connecting the post to the side girder) to two posts and raise it to form a frame. Use your level to ensure that when you raise the frame, the posts maintain plumb and the girder is level. Once you are happy, screw in your second screw.

Step 3: Attach your head & foot girders



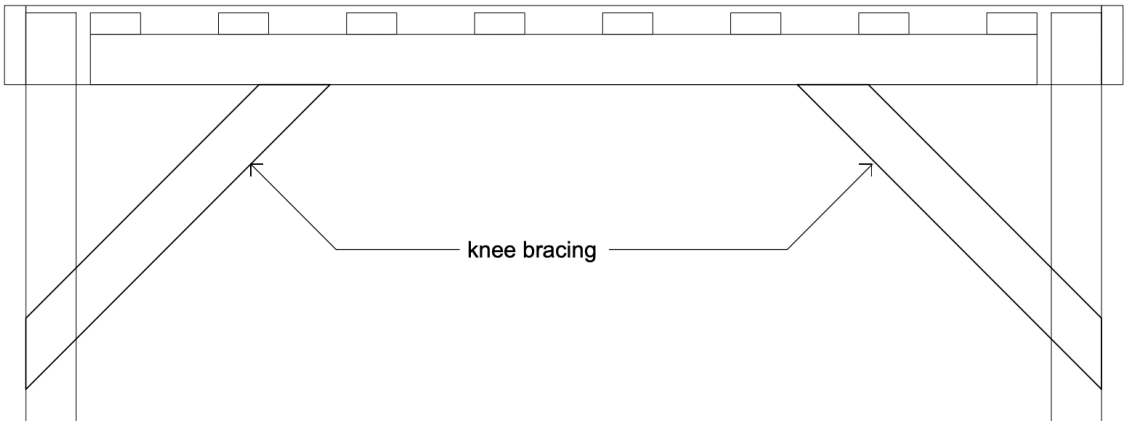
Once you have raised your first side, attach your head and foot girders by placing them flush with the side girder. They should stick out to ‘complete’ the corner, as seen in the birds-eye picture above. When attaching them, make sure to use the level to maintain proper alignment.

Step 4: place your joists



This should be the easiest part! Joists are cut ½” short of the length of the gap and should rest on the joist rail with ease. Space them evenly to support your mattress. You can optionally screw them down into place, but this is not necessary.

Step 5: knee bracing



Knee bracing should be placed everywhere it can. It goes directly below the girder, screwed horizontally into the post and vertically up into the girder. If you are making attachments to your loft, such as shelves, or placing something that would interfere with the placement of the knee braces, you can optionally leave one or two out. This is not ideal and reduces the structural integrity of the loft (especially under lateral loading or .. vibrations), but wont meaningfully make your loft unsafe. If possible, prioritize maintaining knee braces on the longer side girder rather than the head or foot girder.

Step 6: ladder

The ladder is left out of this guide. For a basic ladder, you will need 2 2x4s cut to about the same length as your posts, and 5 steps cut to about 16.” you can spend a lot of time making a nice, angled ladder, or you can build a fast and easy vertical one. This is left as an exercise for the reader.