

How to Start a Community Fridge

A guide to building and maintaining a community fridge

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DSM FELLOWSHIP



An Initiative of

GREATER DES MOINES
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Overview

What is a Community Fridge?

38 million people face hunger in the United States every year. On top of that, 130 billion meals are thrown away, filling landfills, and leaving families hungry. Community Fridges are one of the best ways we can combat food insecurity and prevent good food from going to waste. Simply put, it is a refrigerator used to share food at the neighborhood level. They're housed in public, accessible places, making surplus, perishable food freely available to members of the community. Food is provided by local businesses or members of the community and is available for collection by people who need it. Anyone can stop by and take the food that they need, no questions asked.

A successful Community Fridge will reduce food waste, build stronger bonds within the community, and promote equal access to nutritious food.

What are the Advantages of a Community Fridge?

In the era of Covid-19, quarantine, and social distancing, community fridges have several built-in advantages over traditional food banks.

- A community fridge doesn't require a large staff working together to be operational.
- Once the fridge is established, volunteers can drop off food donations at their own convenience.
- Since the fridge operates 24/7, there are typically no long lines of people waiting to access the fridge
- According to Vox, many hard-hit communities have significant populations of undocumented residents. These people are ineligible to receive aid from many food banks or government-funded Covid-19 relief efforts. Community fridges don't have requirements, allowing those individuals to access food at any time.

First Steps

Organizer

While you may have several organizations and individuals wanting to support your Community Fridge, it is recommended to choose one 'organizer' to lead the project. The Community Fridge Organizer will handle a variety of responsibilities including:

- Setting up the fridge and pantry area
- Managing partner relationships to feed the fridge
- Ensuring proper care and maintenance of the fridge
- Continuous monitoring of food safety

In addition to receiving individual food donations, many community fridges will partner with local restaurants and grocery stores to participate in food recovery efforts. *The Love Fridge*, a

Chicago-based community fridge, recently partnered with local chefs to stock their refrigerators with fully prepared meals. Not only does this provide for the community, but also serves to highlight local chefs in a struggling restaurant industry. Partnerships like this are only possible through the hard work of the community fridge organizers.

Fridge organizers are also responsible for ensuring the refrigerator is kept in a sanitary condition and that the food items donated are safe to consume. The organizers of the *Avondale Fridge* in Chicago noted that one of the challenges has been ensuring that unacceptable food items, such as half-eaten food, are not placed in the fridge. It is advised for organizers to adhere to local public health guidance.

Location, location, location

Fridges need to be in a covered and secure unit, whether it is a shed, outhouse building, or in the foyer of a community building. When looking at locations, a nearby power outlet (or close enough to use an extension cord) is necessary, and access to Wi-Fi is beneficial for temperature monitoring devices. Additional considerations include if it is adequately visible to the public and accessible to individuals of all abilities. Consider how you can enable an equitable opportunity of access. It's also important to research the area and find a location that serves the most people in need.

Consider what you could do with the area around the fridge and how the space could connect the community. You may want to have space for:

- A freezer as well as a fridge, to enable large amounts of food to be received and stored for longer
- Shelves for food items that don't need to be refrigerated, ie. Non-perishables, bread, potatoes, cooking items (oil and spices)
- Bins for waste packaging and compost
- Wall space for information and resource sharing

Having a fridge location that people are already coming to for a different purpose helps drive traffic for donations and retrievals. It's also important that there is enough space surrounding the fridge for people to park and unload their donations. Having it clearly visible from the street/parking area increases the ease and safety of access.

For additional guidance when choosing a location, reference the [location screening tool](#) in the Appendix.

Additional Challenges – Zoning Laws

One of the most common and serious issues that you may face when searching for a location is that of city zoning laws. A failure to comply can result in substantial penalties and fines issued to the fridge organizer or property owner which could threaten the entire operation. *In the city of Des Moines, community fridges are required to be placed on a commercially zoned property.*

Local Support

There may be a range of groups who may be able to help support your project. Here are a few examples:

- Local food retailers and supermarkets, including coffee shops, cafes, delis, gas stations, convenience stores
- Community groups or charities that cook meals for the community
- Food banks and local voluntary services
- Local waste management facilities
- Food waste organizations
- Community gardens and local farmers

Ask local groups what they would like to see the fridge achieve, whether it could support any of their key activities/goals, and how they could help. You may want to host a planning meeting early on, and it may help to share success stories from the other community fridges in the area.

Local Business Engagement

There are a handful of major retailers and food businesses participating in food recovery by donating to other hunger fighting agencies in the area. Here are a few things to consider when meeting with local businesses:

- You're offering a service – reducing the amount of waste they might otherwise pay to dispose of and helping them to become a more sustainable business.
- You're providing them an opportunity to contribute to positive social impact and directly supporting the community. Share personal stories about how the fridge is benefitting individuals.
- Build trust – this takes time, so be patient and persistent. It may take a while to find the right person to speak with about supporting the fridge.
- Offer to start on a trial basis if needed. Agree on specific pick-up days and times, and/or certain types of food items to get started.

You may run into challenges from local businesses and major retailers with concerns over food safety and potential impact on sales. Some businesses only donate to known charitable outlets

and are wary of food being freely available to the general public. Others that are part of larger franchises or chains either may not have the authority to commit or may have pre-existing charity partners.

Assure them that you, as the community fridge organizer, are continuously monitoring the fridge and the donations that are dropped off. All food that is donated is expected to follow clear guidelines for the fridge that ensure food safety. Technology helps too – consider installing a raspberry pi device. This device monitors temperature for the fridge it is in. The community organizer will be alerted if the temp drops too low or if there are any issues with the power.

Community Ownership

Fostering a sense of community ownership is important to ensuring that the responsibility of maintaining the fridge doesn't fall on one person. Even though the fridge "owner" from Sweet Tooth Farm is the primary point of contact of Sweet Tooth Community Fridge, it is really the community's responsibility. Establishing "fridge partners" to wipe down the fridge, check on it, donate food, etc. makes the fridge run smoothly. Regular fridge partners can be added to an email distribution list or Facebook page to contact them regarding fridge duties or updates.

For additional guidance when it comes to finding fridge partners, reference the [partner/donor screening tool](#) in the Appendix.

Setting up the Fridge

Shelter and Security

It is recommended to check in with any businesses and/or people neighboring the community fridge location to make them aware of it, since there will be people and cars coming to the area. Approaching them prior to fridge setup could avoid any conflicts or questions down the line. Neighbors' responses to the fridge setup could greatly vary. Getting them involved early and hearing any suggestions they have will increase the chance for a positive relationship over time.

If the community fridge is located outside, it is best to keep the refrigerator out of direct sunlight and safe from the elements and ensure the area surrounding it is free of foliage and debris. This can be done by building a large, waterproof structure around the refrigerator itself (example below). Your fridge and/or pantry area will be at risk if it's exposed to wind, rain, or extreme weather. Make sure it's covered at the back and sides permanently and that the front can be covered during hours of closing or bad weather. It is recommended to have a shelter with spring doors that will shut automatically after opening.

Once the outdoor temperature drops below that of the interior of the refrigerator and/or freezer, the unit will no longer be able to regulate the temperature and may shut down. Due to the winter temperatures here in Iowa, putting a heater inside of the shelter to maintaining

proper temperature is crucial. Without a heater, many fresh items in the door of the fridge will freeze. It is recommended to put a sign next to the heater reminding people stocking food to avoid placing anything on top of it. This helps prevent specific foods from getting too warm and is a general safety precaution.

And of course, have fun with it! Make the fridge beautiful and attractive to the neighborhood. Invite artists and neighbors to participate in painting the fridge and transform it in an evolving art installation.



For additional guidance about shelter and structures, reference the building materials and structure guide in the Appendix.

Budget and Funding

The costs of running your fridge will vary. It will depend on the space and existing staffing, volunteer support and resources you already have in place. We suggest the set-up phase focuses on building up a strong volunteer base and wider network, so that the fridge can run on minimal overheads long-term.

There are ways to seek financial viability in the long term. There may be the possibility of funding from local donors, food retailers and businesses. Other options include crowdfunding or applying for grants. Microsoft/ChangeX has a \$5000 grant available to organizers that want to start a fridge. Funding goes toward startup costs like materials to build a structure and buying food to feed the fridge. More resources and info about their Community Fridge Network here: [ChangeX](#)

Food Safety

The Bill Emerson Good Samaritan Food Donation Act

This law protects good faith food donors and recipient agencies against liability, excepting only gross negligence and/or intentional misconduct. In order to be protected under this law, the recipient agency has to be a nonprofit. If you are a potential host or property owner concerned about liability, try to partner with local nonprofits that can offer you protection.

Handling Food

Please take into consideration the following when handling food:

- Wash and dry hands before visiting the fridge
- Do not handle food if you are suffering from a disease likely to be transmitted through food, or have infected wounds or infections

4 main factors that risk food safety:

- Time and temperature abuse
- Cross contamination
- Poor personal hygiene
- Poor cleaning and sanitizing

Feeding the Fridge

Basic Guidelines for donating food to the fridge:

- Only donate food when still fresh or before it reaches the use-by date if it has one.
- No partially eaten or leftover food should be allowed.
- Utilize the 'first in, first out' method.
- Only donate food if you don't have a use for it, not because it's no longer edible.
- All food items must be sealed to prevent exposure to contamination. Prepared foods should be labeled and dated from day of preparation, and should be discarded after seven days.
- Try to make sure any relevant allergy information is clearly displayed. This could include gluten, eggs, fish, nuts, soybeans, and milk products
- To prevent cross contamination during storage, food should be separated by type. Ready to eat foods at the top, unwashed salad, fruit, and vegetables in the middle (or crisper drawers), and raw meat and fish at the bottom.

Community fridges are governed by community rules, so it is important to post signage on the fridge or surrounding structure clearly stating these guidelines, as well as contact information so users can report any concerns. It may be helpful to develop a list of Standard Operating

Procedures for volunteers and donors to follow, including daily and weekly tasks, fridge cleaning and sanitizing guidelines, and fridge content monitoring procedures.

Insights Gathered from Local Research and Field Work

DSM Fellowship members visited the community fridge at Sweet Tooth Farm at 1809 8th St, Des Moines, IA 50314 and met with the fridge owner Monika Owczarski to gather insights about what it takes to build and maintain a successful community fridge in Des Moines, Iowa. These insights can be applied to new community fridges in the Des Moines metro area. While different communities may have slight nuances, the general findings from our research and fieldwork can be applied to help further new community fridge efforts.

For questions related to the Sweet Tooth Community Fridges, reach out to Monika Owczarski at sweettoothfarm.dsm@gmail.com.

How have you seen community fridges impact your surrounding community?

“When Aubrey and I started the first Community Fridge in Iowa (at least as far as we can tell!) it was unknown. We were following the lead of so many in other places and we weren't sure what to expect. I think the largest impact, aside from the immediate increase in availability of fresh food items to communities, has been the perspective shift. So many people have completely accepted the idea that 1. All people deserve access to nutrient dense and fresh food items full stop no qualifiers and 2. That folks who are utilizing services deserve autonomy and dignity in receiving food. You don't have to fit into any criteria to use community fridges - they are for us all! You just need to be hungry.”

Why is food rescue important in a city like Des Moines?

*“Iowa is seen as the bread basket for the world - but I think the average person would be shocked at how little edible food products Iowa produces and exports, compared to how much food is on shelves and set to be thrown away. So many people in food service, grocery, event centers, etc talk to me about the HUNDREDS of pounds of food they regularly throw away. It really is shocking. I truly believe that food rescue is one of the best ways that we can sustainably combat food insecurity. The resources have already been used - the food has been made - packaged - shipped - etc. We just have this backward belief that it's not good anymore if you don't buy it. Des Moines **absolutely** has enough food to feed all of its citizens. The question is, do people have the courage to change how they operate and let go of the control and desire to throw the food away or can they give it to people on the ground doing this work who can get it to folks immediately. I believe in people and I think that eventually we will get to a place where most if not all spaces that deal in food will be participating in food rescue work.”*

How have you seen Eat Greater Des Moines and other food rescue nonprofits improve the Des Moines community in the past few years?

*“Food rescue is an immediate solution. There is enough food for us all - the question is just how do we distribute it more evenly and save it from the garbage. That is the biggest impact - but beside that, food rescue empowers people. It shows that anyone can make a significant difference by having a conversation with their co-workers, their neighbors, their bosses and companies about where their excess food is going. They can see that right now *today* we can make an impact. We don't have to repackage hundreds of lbs of grains and rice to give out at food banks - there is prepared food as I write this (perfectly delicious and nutritious food!) being thrown into a trash can. Widening the group of people who believe in this work, and who will physically volunteer and participate has been huge in the last few years.”*

Marketing

The Sweet Tooth Farm community fridge utilizes its Facebook page as a means of marketing and interacting with the community. It also allows the fridge owner to post updates to the community, and for the community to feel more connected. The fridge owner may need to answer questions, address comments, and monitor the posts on the Facebook page. Word of mouth is also very effective. Because the community fridge struggles to remain stocked, no additional marketing is needed to spread the word about being able to obtain food from the fridge.

Check out the Sweet Tooth Farm community fridge Facebook page here:

<https://www.facebook.com/SweetToothFarm/>

Check out the Sweet Tooth Farm community fridge Instagram:

@sweet_tooth_community_fridge

https://www.instagram.com/sweet_tooth_community_fridge/

Community Fridge Hardships

One of the biggest challenges with a functioning community fridge is keeping it stocked. Once people know about the fridge, there can be several people grabbing food from the fridge/pantry each hour. Finding partners to donate to the fridge is essential. Check out the Partner/Donor screening tool in the appendix.

Another challenge can be acquiring enough volunteers initially to help with the cleaning of the fridge and monitoring of labeled foods. Establishing a relationship with surrounding neighbors can really help with this, since they are in close proximity. Creating the social media pages will also attract volunteers, donors, and customers.

Appendix

New Location Screening Tool

Location Name:

Date:

Criteria	Question	Score A - Excellent Fit	Score B - Good Choice	Score C - Not Ideal	Notes
Accessibility	Is this location easy to access from anywhere in the city?	Location is easy to access directionally, navigation would know how to get there, plenty of places to park (street or parking lot).	Location is not in a well known area and there is some parking but only one to two spots.	Location is in a remote area with no designated address and no parking.	
Privacy	Is the community able to access the fridge anonymously?	Location is in a neighborhood or community, it is discrete, and there is no monitoring of users.	Location is a church or school and users have the option to provide their information.	Location is in a park or laundry mat and there could be a camera or strict monitoring.	
Community Need	Will the new location be able to easily help a low-income community?	Location is in a food desert in a low-income neighborhood or community. There are no established food programs in this area.	Location is in a low to middle class community with some food-based program nearby.	Location is in a middle to low income neighborhood and it has food-based programs nearby.	

New Partner/Donor Screening Tool

This tool is intended to be used as a guideline in conversations with potential future owners and donors of new community fridges. The scoring categories are not intended to disqualify anyone from participating if their responses are “not ideal” but to make all parties aware of aspects to consider when starting a community fridge. The final decision to choose partners and donors lies with EAT Greater DSM (or interviewer).

Partner Screening

Opening questions:

1. Why are you interested in managing a community fridge?
2. How do you see a community fridge as different from a food pantry?
3. What support do you anticipate needing from Eat Greater DSM? (e.g. initial startup materials for the fridge, such as shed and monitoring device, food delivery options, alternative resources, etc.)

Criteria	Question	Score A - Excellent Fit	Score B - Good Choice	Score C - Not Ideal	Notes
Partner - Fridge Visits	How often is the donor/partner able to check on the fridge to make sure it is still running smoothly and functional?	Partner is able to provide regular visits to the fridge (e.g. weekly) and more frequent visits as needed.	Partner is able to provide regular but infrequent (e.g. monthly) visits to the fridge with reliance on other volunteers to supplement visits.	Partner has no ability to visit the fridge regularly and is heavily dependent on volunteers to maintain the fridge.	
Partner - Resources (volunteers)	How much support does the partner expect to have from its organization (i.e. number of volunteers)?	Partner expects to have a large group of people (i.e. 5 or more) available to consistently support the operations of the fridge.	Partner expects to have at least 4 people to consistently support the operations of the fridge.	Partner expects to have a small team of less than 4 people to consistently support the operations of the fridge.	
Partner - Resources (food donations)	Do you already have sources for regular food donations identified or committed?	Partner already has an established relationship with potential food donors.	Partner has resources and is willing to establish their own food donors.	Partner is open to working with potential food donors.	
Partner - Resources	Are you able to accept and	Partner has established	Partner has the ability and/or	Partner does not allow monetary	

(monetary donations)	manage monetary donations to the fridge efforts?	platforms and procedures to accept and manage monetary donations.	resources to set up platforms and procedures to accept and manage monetary donations.	donations, only food donations.	
Partner - Resources (financial backing)	Is the new location financially stable and aware of all of the potential costs related to a community fridge?	Partner is aware of all of the necessary costs, has financial partners, and has a budget to plan out all of the necessary funds.	Partner has somewhat of an understanding of the necessary costs and the location has one to two investors to cover part of the cost but not all.	Partner has no additional financial partners or available funds at this time.	
Partner - Communication & Promotion	Do you have established channels for communicating to potential users? (i.e. signage, social media, email, etc.)	Partner has established channels for 2-way communication with potential users.	Partner has the ability and/or resources to set up a channel for communication with potential users, but it is not yet established.	Partner does not yet have plans to set up a channel for communication with potential users.	

Donor Screening

Criteria	Question	Score A - Excellent Fit	Score B - Good Choice	Score C - Not Ideal	Notes
Donor - Frequency of Donations	How often is the donor/partner able to provide donations?	Donor is able to provide regular and frequent (e.g. multiple times a week) donations.	Donor is able to provide regular but infrequent (e.g. weekly) donations.	Donor is not able to provide donations regularly - infrequent (e.g. periodic, random)	
Donor - Variety of Donations	What kinds of foods are you able to donate?	Donor is able to provide a healthy variety of food	Donor is able to provide a variety of non-perishable foods	Donor is only able to provide limited selection of food or unhealthy food options	
Donor - Delivery	Are you able to deliver the donations to our fridge or fridge owner?	Donor is able to provide delivery to the fridge.	Donor is willing to work with third-party (e.g., Eat Greater DSM) to coordinate deliveries.	Less reliable delivery option (e.g. single volunteer)	

Shelter - Material list and building guidelines

Material List

- 4 - 4' x 8' x 3/8" soffit panels
- 17 - 2' x 4' x 96" studs
- 3 - 3' x 8' Pro-Rib Roof Panels

Misc Materials:

- Loose 16d framing nails and/or 3" nail strips for a pneumatic framing nailer
- 1 5/8" triple coated deck screws

Tools:

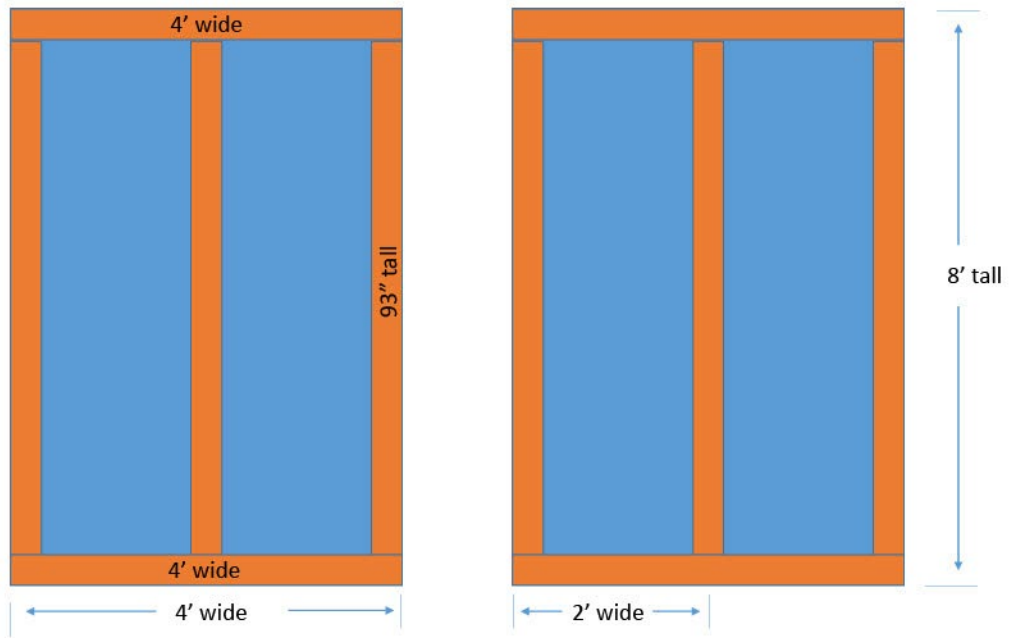
- Circular saw or hand saw for cutting the studs
- Speed Square
- Chalk Line
- Pencil
- Measuring Tape
- Drill/driver and drill bits
- Air compressor/hose and framing nailer and/or framing hammer

Cut list:

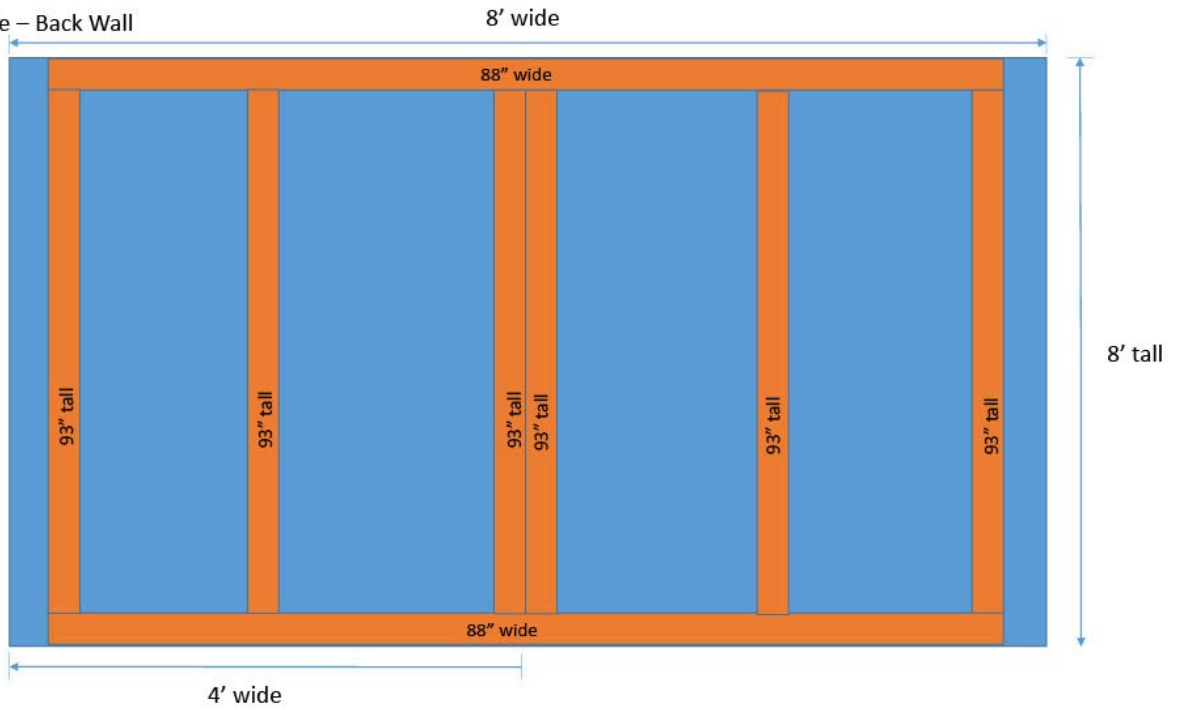
- 4 qty - 4' x 8' x 3/8" soffit panels – no cuts needed
- 3 qty - 3' x 8' Pro-Rib Roof Panels – no cuts needed
- 2 qty - 2' x 4' x 88" studs – top and bottom plate for back wall
- 6 qty - 2' x 4' x 93" studs – back wall vertical studs
- 4 qty – 2' x 4' x 48" studs – top and bottom plate for side walls
- 6 qty - 2' x 4' x 93" studs – side walls vertical studs
- 1 qty - 2' x 4' x 96" studs – top connector on the front of the enclosure

Dimensions for each part of the structure are below

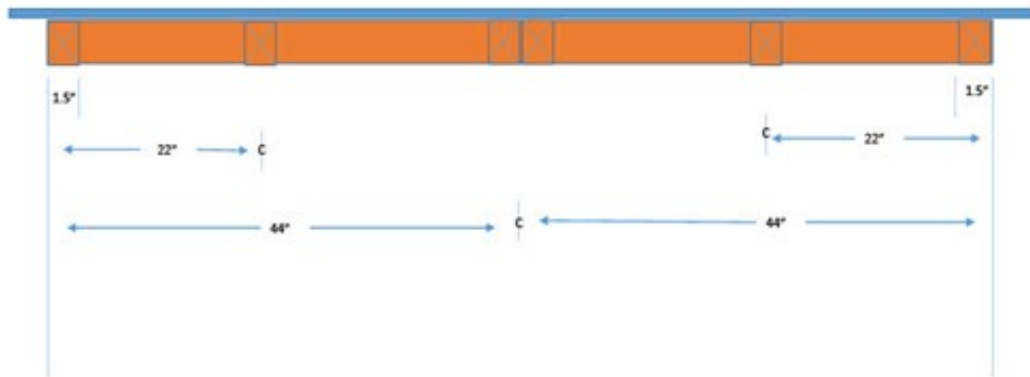
Not to Scale – Side Walls – Two required



Not to Scale – Back Wall



Not to Scale – Back wall



Inner Cabinet – Material list and building guidelines

There is also a smaller cabinet structure immediately surrounding the fridge (within the larger structure mentioned above). The cabinet doors are on springs to ensure the doors are always shut. This structure can double as a pantry by adding shelves to store non-perishable items. Due to the need for a shelter and a heater anyway, any type of fridge will work (one from an office or home, or a more industrial, restaurant-sized unit).

Material List

- 12 – 10'x2"x4"
- 4 – 1-1/2 in. x 4 ft. x 8 ft. R-5.78 Rigid Foam Insulation
- 4 – 3/4" x 4 ft. x 8 ft plywood
- 4 – 1/4" x 4 ft. x 8 ft plywood
- 1 tube construction adhesive
- 2 sets - 3-1/2 in. Spring Tee Hinge
- 2 1/2" deck screws
- 1 1/2" deck screws
- 1" drywall nails
- Cabinet handles

Building Guidelines

Step 1 – Determine overall height/width/depth. Internal height and depth will be determined by your refrigerator.

- Measure the depth of your refrigerator, include handle and any coils that protrude out of the back. Add 4" inches. This measurement will be the length of your side base boards. Subtract 7" and this will be the length of your side top bracing boards (figure 1)
- Measure the height of your refrigerator. Add 8" to accommodate the base of the cabinet, the top of the cabinet, and a couple spare inches. This measurement will be the length of the side corner boards (figure 1)
- To determine the width, measure the width of your refrigerator, then determine the desired width of your pantry shelving. On the unit I built, the refrigerator was 30", shelving was 28", I added a couple inches to be safe so interior cabinet measurement was 60"/5'. Use your interior cabinet measurement and add 1/2" for your top front and rear top bracing boards (figure 2). Use your interior cabinet measurement and subtract 2 1/2" for your front and rear base boards (figure 2).

Step 2 – Cut the corner, base, and top bracing.

- Cut the 4 corner boards from 4 of the 10' 2x4's. The scrap from these cuts should work for your side base and top bracing boards.
- Cut the front and back base and top bracing boards from 2 of the 10' 2x4's

Step 3 – Assembly

- Lay 2 of your side corner boards, lay flat. Lay 1 side base board on the face of the corner boards at one end. Take a side top bracing board and lay between the corner boards at the other end. Ensure the framing is square. Assemble using 2 ½” deck screws. Repeat for the other side. Refer to figure 1 for visual.
- Stand the two sides up. Attach the front base and 2 top bracing boards flush with the front and rear of the sides with 2 ½ deck screws. Attach the rear base board 1 ½” in from the rear of the sides to accommodate the foam insulation. Refer to figure 2 for a visual

Step 4 – additional bracing

- At this point you can measure and cut a base board from 1 of the 10’ 2x4’s to locate in the middle of the base using 2 ½” deck screws to support the weight of the refrigerator (figure 2).
- Using the rest of this board you can also add a vertical bracing board on the back using 2 ½” deck screws to support the sides of the sheeting when installed since your cabinet width will most likely be wider than a 4’ sheet of plywood. I would locate the vertical center of this vertical board 48” from one of the side corner boards (figure 2)

Step 5 – corner bracing

- Take 1 of the 10’ 2x4’s and cut in half lengthwise. Half will be used for one back vertical corner and 1 top side horizontal corner, the other half will be for the other side. Take another 10’ 2x4 and cut in half. Half of this board will be used for the front and back top horizontal corners. Once these boards are attached using 2 ½” deck screws they will give you something to attach your internal sheeting to (see figure 3).

Step 6 – base bracing

- Take another 10’ 2x4 and cut in half lengthwise. Using these 2 halves and the leftover half from previous step, install using 2 ½” deck screws around bottom of the 2 base cavities to support insulation installation (see figure 3).

Step 7 – insulate

- Use 1 sheet of insulation per side, total of 2
- Use 1 sheet and a lengthwise scrap from 1 of the sides for the back
- Use scrap from the sides and top of back to fill in the base cavities laying on top of the bracing installed in Step 5.
- Top will remain uninsulated at this point.

Step 8 – exterior sheeting and cabinet floor

- Cut and install 1 sheet of ¾” x 4 ft. x 8 ft plywood on one side using 1 ½” deck screws, repeat on the other side. Total of 2 sheets

- Install 1 sheet on the back, using vertical scrap from one of the sides to complete. Make sure you full sheet lines up with the vertical bracing installed in step 4.
- Using another sheet cut the floor.
- Set scrap aside. The remaining scrap will be used for the top exterior.

Step 9 – install interior sheeting

- Use one sheet per side, one for back using vertical scrap from 1 side to complete back. Use another sheet for ceiling. Use construction adhesive and small nails to attach sheeting. The sheeting is thin so the construction adhesive will give it rigidity when dried and will keep the sheets from bowing between nails. The remaining scrap and final full sheet will be used for the doors.

Step 10 – install top insulation and exterior sheeting

- Using scrap insulation and $\frac{3}{4}$ " sheeting, finish the top. I left a 2" overhang in the front to protect the top of the doors.

Step 11 – Doors

- Measure the overall exterior height of the front of the cabinet from under the front top overhang to about an inch from the bottom of the cabinet. This will be the height of your doors.
- Measure the overall exterior width of the front of the cabinet and divide by 2. This will be the APPROXIMATE width of your doors.
- Use the last 2 10' 2x4's and cut in half lengthwise. One 2x4 will be used for each door. Using your door measurements cut the 2x4's to length to have a frame that matches your measurements. Use 2 $\frac{1}{2}$ " deck screws to assemble. I had some scrap of the halved 2x4 left to do a brace mid-door to add strength. Ensure you lay the 2X4's "flat" and not on the cut/original narrow edge (figure 4)
- Fill in the cavities on the door with the final sheet of insulation and scrap.
- Sheet the inside and outside of the doors using the final $\frac{1}{4}$ " sheeting and scrap. Attach using construction adhesive and drywall nails.

Step 12 – Final assembly

- Attach hinges to the doors and instructed on the hinge package, attach doors to the cabinet
- If installing a heater, drill through the wall for the cord. If the heater is not oil filled, make sure to use metal "plumbers tape" to fasten the heater so it does not get jostled and pointed at the wooden cabinet.
- Insulation strips can be installed on the face of the cabinet between the cabinet and the doors to seal the doors.
- Any type of shelving can be used to fit the pantry space.