

DEMOLITION & RENOVATION

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Safety Talk

Basic Construction/Demolition Safety

1. Drink plenty of water and watch for dehydration!
2. When you are tired - Rest!
3. Know where the First Aid Kit is - if you are hurt see your House Leader or Site Host immediately. Our Accident Procedure is in the Site Host book, please follow it.
4. Fill out an Incident Report any time the First Aid Kit is opened.
5. Keep a name tag on at all times.
6. Use Common Sense! Keep an eye on your own safety and the safety of others.
7. Concentrate -- especially if you are on a ladder or roof.
8. Watch for trip hazards wherever you are going.
9. Help keep the site safe by picking up and moving things that are in the way.
10. If you see something unsafe tell your House Leader or a Staff Member.
11. Hardhats are required to be worn at all times through the completion of drywall lids.
12. Please refrain from using ear buds on site, as they caused distraction and are a safety hazard.
13. Do not use cell phones or other electronic devices while working as they create safety hazards.

Lifting and Carrying

1. Bend your knees and lift with your legs not your back.
2. If something is too heavy, get help - don't hesitate to ask!
3. Make sure you can see over what you are carrying.
4. When carrying something longer than 8 feet have a person on each end.

Ladders

1. At the beginning of each day inspect all ladders for any structural defects that would make them unsafe. If any defects are found, mark the ladder(s) and set it aside for the Site Supervisor's disposition.
2. Use the right size ladder and place it on a solid footing
3. Never lean an A-frame ladder against anything, always use it fully opened.
4. Never stand on the top step or back side of a ladder.
5. Don't stretch/lean too far – always keep your belt buckle between the ladder uprights - take the time to move the ladder with your work!
6. Get someone to steady your ladder if needed.
7. Only one person on a ladder at a time.
8. The 4 to 1 rule: For every 4 feet of height, move extension ladders one foot away from the wall.

Power Tools

1. Make sure you know how to use a power tool and don't disable safety features.
2. Wear safety glasses when using power saws and other power tools that create flying debris.
3. Make sure power cord is unplugged before performing any tool maintenance.
4. Take off gloves when working with saws.
5. Watch fingers near moving parts and tie back long hair.

6. Secure all loose clothing (shirt cuffs, nail pouches, etc.)
7. Watch the power cord when cutting and don't carry a power tool by its cord.
8. Get help when cutting large/long pieces of material.

Roof Work

1. NEVER walk backwards on a roof!
2. Pay attention to where you are and be extra careful near the edge.
3. Don't lay tools down on the roof - they can slide off and injure people below.
4. Watch for falling objects and sliding materials.
5. Watch for people working above, below, on the ground, or directly under you.
6. Carefully check below before dropping scrap off a roof.
7. Sudden gusty winds can cause a fall or cause material to blow off the roof.

Key Things to Remember

- Demolition is the most dangerous thing we do. The risk of injuries is high.
- Keep all Leaders focused on their safety and the safety of the volunteers they are leading.
- Always be aware of where everyone in your crew is and what they are doing.
- Clearing debris and keeping the site neat is critical to safety, always have brooms and shovels handy to aid cleaning.

Efficient Use of Volunteers

- Assign one Team Leader each week to use volunteers to organize the Mini at the end of the day.
- Empty ALL nail pouches and sort nails and tools into proper places.

Demolition

Demolition work is the only phase in our Renovation Projects that is not part of new construction, and it is the most dangerous work that we do. We are intentionally trying to damage and pull things down. The trick is to do it without something falling on and hurting someone.

We all must be constantly aware of our own safety as well as that of the volunteers we are supervising. More than at any other time we must be aware of where everyone is and what they are doing. Ideally we should have a lower volunteer to leader ratio for Demolition than for anything else we do on our sites. This is also the time (because of the inherent dangers of Demolition) that we must be most conscientious about keeping our work areas clear and clean at all times.

Hard hats must be worn at all times, as should gloves. Wear masks and safety glasses when appropriate. Sturdy shoes (to protect people's feet) with good gripping soles are a must for Roofing Demolition work.

Which of the following phases of Demolition will occur on any given house varies, and some of them may only be done to a small area. The beginning parameters of all phases will be determined by the Construction Staff, based on the scope of work, but as things are being demolished some of these parameters will likely be changed by what is uncovered. At that point your Site Supervisor and the House Leader will discuss and determine what additional work may be needed. When in doubt always ask.

Responsible Renovation

A major renovation seems to generate a lot of waste, but there is far less than a total demolition or a new house would create. Even though there is some waste going to the landfill, renovation is far less damaging to the environment than new construction. Remember to salvage or recycle everything that you can, after you consult with the site supervisor for details.

Sequence of Renovation

Although listed separately for clarity, both interior and exterior work should occur simultaneously. Try to bring each phase of the construction along at the same rate both inside and out. Not all the following steps may be needed, but those that are should remain in the same order.

Exterior Renovation

1. List what needs to be done.
2. Demolish what needs to be eliminated and haul away all demolition debris.
3. Perform all needed structural work. Start at the bottom and work up.
4. Complete all needed site work (except landscaping).
5. Repair/replace roof (including vents, Flashings and fascia) as needed.
6. Repair/replace windows and exterior doors as needed.
7. Repair/replace exterior wall surfaces.
8. Caulk, putty and paint everything.
9. Landscaping.

Interior Renovation

1. List what needs to be done.
2. Demolish what needs to be eliminated and haul away all demolition debris.
3. Perform all structural work.
4. Complete all framing changes, including pre-drywall items.
5. Complete all rough-ins.
6. Install insulation.
7. Install/repair drywall
8. Install doors and trim.
9. Paint.
10. Install Trim Packages.
11. Install flooring.
12. Install Accessories.
13. Do punch list.
14. Clean and wash everything.

Bearing Walls

Before removing any wall, you must determine whether or not it is a bearing wall. While this is not always easy to do, using the following conditions as indicators of a bearing situation will help.

1. The wall runs down the middle of the length of the house, and joists or trusses run perpendicular to the wall.

2. Joists spliced over any wall indicate that the wall supports them.
3. The wall runs perpendicular to the joists (no splice) or trusses and breaks up a long span. Checking span tables can help determine if the wall is load bearing.
4. Visually inspect from the attic before removing any wall. If you have to remove a bearing wall you must use shoring to temporarily support the weight until the new structure is in place. Depending on the length of wall involved and the situation, shoring can be as simple as a single post or as complex as multiple temporary walls. If you need to build temporary walls, remember to make the studs 1/2" shorter than the existing ones to allow tilting the temporary wall into place. Once the wall is standing and positioned properly, shim as needed to provide solid bearing. Another option if the material is available is to build a post and beam structure instead of a wall.

Whether you are removing a single stud or entire walls, try to salvage as much of the framing material as possible for use in new walls and as blocking.

One thing to remember when modifying existing framing in older houses is that the standard sizes of dimensional lumber have changed over time. As an example, 2x material has gone from almost 1 3/4" to just under 1 1/2". Check the actual dimensions of pieces being removed and adjust/shim the replacement pieces as needed.

Roofing Removal

Roofing Removal is usually the first volunteer phase of Demolition (and one of the most labor intensive). Safety is the biggest issue here as with roofing. All normal safety procedures (i.e. safety rails and never back up on a roof) still apply, but there are additional dangers in removal.

The first thing to do is to walk the entire perimeter of the roof and check the fascia and outriggers/truss tails for any signs of damage (rot or breaks) that might weaken them. If any problem areas are found, get on a ladder and with either red or orange spray paint spray a "danger zone" on the roof over the area.

The next step is to get onto and walk the entire roof checking for soft spots. If any are found, spray paint a "danger zone" around each area. If possible, get into the attic and determine whether the softness is a framing issue or just a decking problem. Only after these safety checks have been completed may regular volunteers be allowed on the roof to begin Roofing Removal.

Remember hard hats must be worn at all times, as should gloves. Sturdy shoes (to protect people's feet) with good gripping soles are a must for Roofing Demolition.

Use a 20 yard roll off (because of the weight) exclusively for roofing paper and shingles. Embedded nails are allowed. Whenever possible the dumpster will be positioned near the roof edge to facilitate easier disposal of the removed materials. If the landscaping is not being re-done, be sure to cover appropriate areas with tarps to keep nails and roofing scraps out.

Begin stripping the shingles at the top of the rear side of the roof and work your way down. Take shingles and paper to the dumpster as they are removed. They are a safety hazard if they are allowed to pile up on the roof. **DO NOT WALK ON LOOSE MATERIALS.** Always have brooms and magnets on the

roof and use them as often as possible to eliminate slipping hazards. When the rear section is done, do the front from the top down also.

Beware of nails both in the removed debris and those still in the roof. Any nails left in the sheathing should be pulled or pounded in immediately as they are a tripping hazard.

When you come to a “danger zone” marking, do your best to remove those shingles without actually stepping in the zone. If needed use a new piece of OSB over the existing deck for better support. Once that area is stripped, be sure to paint a new “danger zone” on the exposed decking.

Keep the ground around the house policed and clean. Use a magnet to pick up stray nails and put them in the regular dumpster.

Roof Sheathing Removal

Remember to go over Roof Safety again before doing any sheathing repairs.

Roof Sheathing Removal falls into two distinct categories, Spot Repairs of “danger zones” or Total Removal.

The standard nail pattern (6” o.c. on edges and 12” o.c. in the field) is to be used for all roof repairs unless otherwise instructed.

Mark all areas to be removed and show how much (48x48 or full sheet, etc.). If removing full sheets, try to pry sheet up as opposed to removing nails individually. Unless the piece is small always use at least two people to carry it to the edge of the roof, and do not toss it off until a leader on the ground gives the all clear.

If the area to be removed is small, it is OK to remove only part of a sheet of sheathing. Mark the area to be removed and remove all nails from that area. Cut out the area to be removed and immediately replace it using new OSB. The new piece should be measured and cut to fit before the old is removed. Complete nailing and move on to the next spot.

If removing an entire sheet, simply pull the nails and switch new OSB for old decking. While the hole is open, be sure to verify that no framing repairs are needed in that area. If they are, complete them before re-decking. Be sure to have new OSB on the roof before pulling the old. Complete nailing and move on to the next spot.

When all replacements have been completed, check the entire roof deck for proper nailing pattern. If there are large areas that do not need any repair work these areas should have the nailing pattern checked while the repairs are being done elsewhere.

If sheathing is being entirely removed from an area but there is no framing repair needed, do the removal and replacement one sheet at a time from the bottom up as this is the safest approach. If however, framing repair is needed remove all sheathing at the same time to allow easier access. Allow no more volunteers in the area than are needed to do the work. Start removal at the top and work down. Remember that you now have all of the same safety issues that you have when trusses have been rolled but not yet sheathed.

Roof Framing Repair

All framing repairs will be based on our standard framing procedures and will rely on your skills for success. The Site Supervisor and the House Leader will identify all framing that is to be removed or repaired and determine what needs to be done. Existing bracing may have to be removed to allow framing modification but must be replaced after modification. Also verify that all bracing meets current requirements. Replace fascia and shingle mold as needed.

Stucco Removal

Gloves and glasses are required safety appliances for this process.

There is no easy way to remove stucco. It basically requires you to be more stubborn than the stucco. It is easiest to start next to a door or at a corner of the house. To get started you may have to pound some holes in the stucco with a hammer. Starting at the top and/or bottom you want to be able to get hold of the chicken wire and pull out and either up or down from the wall. You may be able to pull off large sections in one piece, or you may have to do several smaller ones. Either way you will need tin snips at some point to cut the wire in order to get manageable pieces to haul to the dumpster. If you need to cut the stucco into smaller sections to remove it, use a skill saw set to the depth of the stucco.

Rake and pick up all stucco pieces from around the house and along the path to the dumpster.

Window Removal

Most likely your house will have single pane windows that will need to be removed. You will need to coordinate the removal of the old windows with the arrival of the new. Verify that scheduling with your Site Supervisor. There is no use for single pane windows. The glass is trash, but the metal frames should be recycled.

If your house is wood framed, the old windows will have flanges similar to our new windows. If the stucco or siding is not being removed from your house, you will need to cut enough away (about 2") to get at the old flanges for their removal.

Either way you will then need to pull the fasteners in order to remove the windows. If your windows are being removed from a wall covered with siding which is not being replaced, be sure to shim behind new windows to bring them level with the siding.

If your house is masonry, you will need to determine how your windows are held in place (normally anchors through the frame into the masonry).

Drywall Removal

When removing drywall, taking down the lids is the most dangerous part. Work from a properly positioned ladder so that no over-reaching is needed. If appropriate, make sure that attic insulation has been removed before removing any lids. Be certain that no one is standing under the section you are about to bring down, or any adjacent section that might collapse as a result of your efforts. Hard hats are required and gloves, safety glasses and masks should be used.

The best way to remove drywall is to pound holes near the edge of the ceiling and then pull down the lid in the first bay. Try to stay to the side of what you are pulling down to avoid wearing the attic insulation that will most likely still descend with the drywall. Now that you have access, try to insert pry-bars

between the drywall and the framing to lever the rest of the sheet(s) off. This does not always work, and often you just have to pull off little pieces one at a time.

It is very important to have part of your crew hauling the debris to the dumpster as soon as it is taken down. Otherwise you are creating piles of accidents waiting to happen. Screws will not come down with the drywall, but nails sometimes will.

Be careful when handling the debris.

Wall drywall is removed in the same manner as the ceiling. When you get to locations having corner bead, be careful as it can be quite sharp.

Once all of the drywall is down, go back and unscrew or break off all screws and pound in or pull all nails.

Systems Demolition

Your Site Supervisor will advise if there is to be any System (electrical, HVAC, plumbing) Demolition on your house and its scope. There is no real process for these removals other than to cut things up and pull them out. If the AC unit is being removed, use a crane. Remember to recycle when possible. When in doubt ask.

Wall Framing Demolition

Your Site Supervisor will advise what needs to be done in this phase. Be careful to remove only those items scheduled for demolition. Safety is key as this work requires the use of Sawz-alls and produces sharp edges in addition to protruding nails and falling framing. Remove all debris promptly but save any lumber that can be reused later as blocking.

The other important part of this phase is to check that all existing framing meets requirements. In particular verify header sizes and heights, that walls, windows and doorways are plumb and square, that everything is properly nailed off, and that all needed blocking (both drywall and cabinet) is present. If any structural pieces need to be removed and upgraded, make sure that sufficient temporary bracing is installed first.

Other Demolition Activities

Other things that occur on many projects are Concrete Removal, the removal/ pruning of plants and trees, and the moving of large amounts of dirt and rock. Gloves, safety glasses and solid shoes are needed for this work. Any of these things that need to be done on your house will be outlined by your Site Supervisor.

Concrete removal is normally done by a contractor, however, if the amount is small, we will sometimes break it up and remove it by hand with volunteers. The main safety issues are swinging sledgehammers and heavy chunks of debris. Have everyone wear gloves, be aware of what's going on around them and be careful not to try to lift too much. The removal or pruning of plants and trees will require saws and digging equipment and requires volunteers to be aware of power saws and swinging picks.

The hauling of dirt and rock usually amounts to nothing more than an exaggerated version of the contouring that we do during landscaping and presents no safety issues beyond those with which we normally deal.

Renovation

The following sections cover construction techniques that we no longer use in our new construction but that might be needed during a renovation.

Framing Bi-Fold Doors

- Trimmer length: 80".
- Header height above finish floor: 81-½".
- Rough framing width: 1-1/2" over door size (i.e. frame a 60" door 61.5" wide). Header length: 3" over rough opening size (i.e. a 61-1/2" r. o. requires a 64-1/2" header).
- Headers with spans greater than 38" require a sandwich header. The sandwich must be placed vertically for maximum strength.

Installing Bi-Fold Doors

Install the track in middle of the header. Use ALL screws provided for the track.

Do not finish the installation until after the flooring has been installed. Use the plumb bob (from your House Leader's small tool kit) to find the proper location for the bottom brackets. This location will be directly under the adjustable mounting bracket in the track. Install the bracket flush to the floor if possible. If not, install a cosmetically appropriate shim between bracket and floor.

Place the top and bottom guide pins and top rollers in the appropriate holes provided in the top and bottom door brackets/rails.

Carefully slide the door into place. You may have to use a screwdriver to loosen the adjustable mounting bracket, sliding it closer to the center of the track. Once the pins are aligned, push the bracket back into place, and tighten.

Make sure the side reveal is sufficient to clear the side of the closet frame.

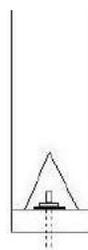
After both doors are installed, make sure they do not hit in the middle. Raise or lower the bottom pin so both doors are at the same height.

Install metal pull handles (not wood!) through both middle door panels in the center of the door, and at the same height as the knobs on the hinged doors. THIS IS THE CORRECT PLACE for the handles to provide the smoothest operation for these very fragile doors. A fender washer must be used on the backside for additional support.

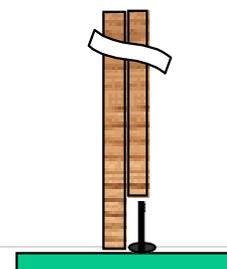
Installing Redheads

Check that the green plate is lined up with the chalk line before tightening down the anchor bolts. Install a ½"x2 ¼" plate washer and ½" nut on every anchor bolt and tighten with a deep ¾" socket.

If it is unavoidable that a stud rests on top of an anchor bolt, cut a v-notch in the end of the stud (see far left, above). This is the preferred method. Only resort to the following method if



V-Notch Stud Over Bolt



the notch will not work. When assembling the wall cut the stud 6" short and then sister a piece next to it so you can save the anchor bolt (see right sketch above).

Where additional anchor bolts are required, install concrete wedge anchors ("Redhead") after erecting the wall.

Using a concrete bit in a Hammer Drill, drill a ½" hole through the bottom plate into the concrete stem wall. The hole must be deep enough to allow room at the bottom for chips to collect, and for only 1" maximum of the redhead to stick up above the green plate.

Place a ½"x2 ¼" plate washer and two ½" nuts onto the wedge anchor. Thread both nuts down the anchor bolt until the top nut is just above flush with the top of the anchor bolt.

Hammer the concrete wedge anchor into the hole.

Enclosing A Post

All dimensions given are for a 12" column. Adjust all dimensions for other size columns.

1. At the base of the column next to the post, secure two Green boards to the anchor bolts. One board is 2x6x11inches and the other is 2x6x5½ inches. The 5½" measurement is approximate. Get the exact size by measuring the actual size of the post.
2. Next secure a small piece of OSB to both boards to keep them from moving or shifting when anchoring the sides of the box column.
3. At the top of the column, install 2x6 Fire Blocking. One board is 2x6x11 inches and the other is 2x6x5½ inches. The 5½" measurement is approximate. Get the exact size by measuring the actual size of the post. Cut a 2x6 eight inches long and use it to connect the pieces of fire blocking, leaving a 1½" space at each end.
4. The 8" portion of the board will fit inside the bottom 2x4 of the box beam. Secure it to the box beam with 10d nails.
5. Measure the distance from the top of the green board up to the bottom of the fire blocking. Cut three 2x4s to this length.
6. To form two sides of the post, prefab an assembly on the ground. Cut two scrap pieces of OSB 11" wide and 3" longer than the 2x4s in Step 5.
 - a. Install a 2x4 at each long edge of one of the pieces of OSB and leave a 1½" space at the top and bottom. Secure with 8d nails every 6".
 - b. Install the third 2x4 on one long edge of the second piece of OSB and leave a 1½" space at the top and bottom. Secure with 8d nails every 6".
7. Take the pre-nailed sheet of OSB with two 2x4s attached and attach its bottom edge to the longer piece of green board and the other end to the 2x6 fire blocking.
8. Take the second pre-nailed sheet and attach to the opposite side of the column. Nail the OSB to the post, the green board and fire blocking. Toenail the 2x4s into the framing at the top and bottom.
9. The last step is to attach OSB to the remaining sides of the box column you have just built. Keep one side open for the inspector to examine the anchors and fire blocking. It must be installed before lathing to provide backing for the lath.

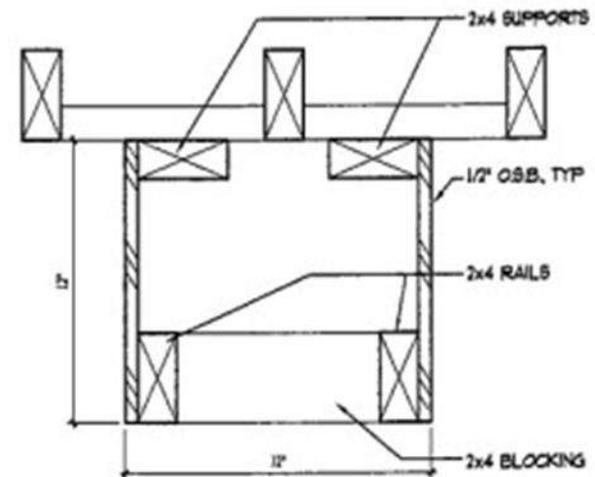
Interior Soffit

If your plan has one, install the soffit immediately after demolition is complete. If possible, use a palm nailer to simplify the installation process.

For complete accuracy pull all soffit measurements from the outside wall.

Determine the width of the soffit from your plans and mark its location at both ends of the space.

Install 22½" 2x4 ladder blocking 24" on center between trusses to attach the soffit to the kitchen ceiling. To ease drywall installation later, start the layout from the exterior wall and go in toward the interior wall.



18 SOFFIT DETAIL
SCALE: N.T.S. 118

Attach 2x4 stringers to the ladder blocking.

Install scrap OSB between the stringers the entire length of the soffit as a solid barrier to prevent insulation from falling into the soffit cavity.

Soffits should have a finished depth of 12".

To make the side panels cut OSB 12" wide by the length of the soffit. Cut a 2x4 to the same length and attach the 3½" side of the 2x4 to the bottom edge of the OSB with 8d nails every 12".

Raise the pre-nailed OSB and 2x4 side panel assembly and attach it to the stringer with 8d nails every 12". Do this to both sides of the stringers.



Add 2x4 blocking between the bottom 2x4's every 24" O.C. (adjust spacing as needed to avoid lights or fan) to ensure proper width. **Do not install OSB on the bottom of the soffit.**