

# HABITABILITY GUIDELINES

## FOR RELOCATED MANUFACTURED HOMES

JANUARY 2019



# Purpose

---

The purpose of these habitability guidelines is to provide a reasonable level of assurance that the relocated manufactured home will be safe from possible health and safety hazards.

This document attempts to establish the guidance needed to determine if a relocated manufactured home intended for installation on a building site in the commonwealth remains in compliance with the Manufactured Home Construction and Safety Standard in effect when the manufactured home was originally produced.

Relocated manufactured homes that meet this guideline are deemed to comply with the Pennsylvania Uniform Construction Code. Upon receipt of the completed Habitability Checklist for Relocated Manufactured Homes, the local code official shall verify that the assessment of the relocated manufactured home was accurate and is in compliance with this guide. The Pennsylvania Uniform Construction code applies to any construction elements not addressed herein.

The Pennsylvania Department of Community and Economic Development (DCED) makes no warranty, expressed or implied, as to the accuracy or validity of the information contained in this document. Furthermore, the department assumes no responsibility or liability for the use of this information regarding the habitability, installation or repair of any manufactured home.

## **Note:**

Throughout this document the word:

“Must” indicates a mandatory requirement.

“Shall” indicates a mandatory requirement.

“Should” indicates a recommended requirement.

## **Authority**

Issued under section 5 of the Manufactured Housing Improvement Act (35 P. S. 1658.5) as amended May 9, 2012.

For more information on Manufactured Housing and installation go to: [dced.pa.gov/mh](http://dced.pa.gov/mh).

# Table of Contents

---

Introduction .....	1
Structure – General .....	1
Exposed Interior Finishes .....	1
Data Plate .....	2
Egress Windows .....	3
Exit Doors .....	3
Safety Glazing .....	3
Interior Doors .....	3
Smoke Alarms .....	4
Carbon Monoxide Alarms .....	4
Exterior Coverage .....	4
Sanitary Facilities .....	4
Water Temperature Limiting Devices .....	4
Heating .....	4
Ventilation .....	5
Clothes Dryer Exhaust Ducts .....	5
Fuel – Burning Appliances .....	5
Cooking Range Anti-Tip Bracket .....	5
Fire Blocking .....	5
Water Heater Drip Pan .....	5
Electrical Systems .....	6
Bottom Board .....	6
Habitability Checklist for Relocated Homes .....	7
Appendix	
A-A walls .....	9
A-B ceiling .....	12
A-F floor .....	13

# Introduction

---

These guidelines are applicable to the use and condition of manufactured homes as defined under section 603 of the National Manufactured Home Construction and Safety Standards Act of 1974 (effective June 15, 1976) designed and constructed to be used solely as dwelling units. Manufactured homes can be identified by the 2"x 4" aluminum certification label affixed to each transportable section and the serial number stamped on the front most chassis crossmember.

These guidelines provide the minimum information needed to determine if a relocated manufactured home remains in compliance with the standard to which the home was originally designed. See data plate information on page 2. If the date of manufacture cannot be determined, the current date shall be assumed.

Manufactured homes that have been altered or modified beyond basic maintenance and repair are outside of the scope of this document. In these cases, the Pennsylvania Uniform Construction Code § 403.25(a)(3) applies.

The local code official may impose additional requirements not addressed in these guidelines.

## Structure - General

Every structural element (floor, wall, roof, chassis) shall be structurally sound and show no evidence of damage or deterioration which would render it incapable of transmitting the design loads specified in the Manufactured Home Construction and Safety Standards. The home should be unaltered and all accessory structures shall be free standing unless the alteration or accessory structure has been authorized by the manufacturer of the home.

Regardless of the foundation type utilized, the steel chassis must remain unaltered and attached to the manufactured home. Wheels, axles and hitch may be removed from the manufactured home without impacting the structure.

## Exposed Interior Finishes

Interior wall and ceiling panels and floor decking must be free from damage and securely attached to the framing members. Floors should be free of "soft spots" or significantly bowed joists.

All interior surfaces, including windows and doors, shall be in good, clean and sanitary condition.

Exposed interior wall surfaces adjacent to the cooking range (including vertical surfaces between the range top and overhead cabinets, ceiling or both) shall have a flame-spread rating not exceeding 50. Decorative plastic or wood finishes in this area are not acceptable.

Walls and ceiling adjacent to or enclosing a furnace or water heater shall have a flame spread rating not exceeding 25 and be of a limited combustible material. Typically 5/16" thick gypsum meets this requirement.

Furnace and water heater compartments must not be used for storage.

# Data Plate Information

The data plate is typically located inside a kitchen cabinet, in a bedroom closet or on the electrical panel-board cover area. If the data plate is not available, additional inspections may be required to determine if the home was constructed for the Pennsylvania climate.

## TYPICAL DATA PLATE

1. Identify the date of manufacture.

2. Identify the serial number. (Cross reference to the front crossmember of the chassis.)

3. Identify Wind Zone (Pa. – WIND ZONE 1)

4. Identify Roof Snow Load Zone. (Pa. – SOUTH (20) ZONE)

Manufacturer Address \_\_\_\_\_

Plant Number \_\_\_\_\_

Date of Manufacture \_\_\_\_\_ HUO Label No. (s) \_\_\_\_\_

Manufacturer's Serial Number and Model Unit Designation \_\_\_\_\_

Design Approval by (D.A.P.I.) \_\_\_\_\_

This manufactured home is designed to comply with the federal manufactured home construction and safety standards in force at time of manufacture. (For additional information, consult owner's manual.)

The factory installed equipment includes:

Equipment	Manufacturer	Model Designation
For heating	_____	_____
For air cooling	_____	_____
For cooking	_____	_____
Refrigerator	_____	_____
Water Heater	_____	_____
Washer	_____	_____
Clothes Dryer	_____	_____
Dishwasher	_____	_____
Garbage Disposal	_____	_____
Fireplace	_____	_____

HOME CONSTRUCTED FOR  Zone I  Zone II  Zone III

This home has not been designed for the higher wind pressure and anchoring provisions required for ocean/coastal areas and should not be located within 1500' of the coastline in Wind Zones II and III, unless the home and its anchoring and foundation system have been designed for the increased requirements (see ASHRAE Exposure D in ASHRAE/ACCA 7-88).

This home has \_\_\_\_\_ been equipped with storm shutters or other protective coverings for windows and exterior door openings. For homes designed to be located in Wind Zones II and III, which have not been provided with shutters or equivalent covering devices, it is strongly recommended that the home be made ready to be equipped with these devices in accordance with the method recommended in manufacturer's printed instructions.

**BASIC WIND ZONE MAP**

**DESIGN ROOF LOAD ZONE MAP** \_\_\_\_\_ North 40 PSF \_\_\_\_\_ South 20 PSF  
Middle 30 PSF \_\_\_\_\_ Other \_\_\_\_\_ PSF

**U/O VALUE ZONE MAP**

**COMFORT HEATING**  
This manufactured home has been thermally insulated to conform with the requirements of the federal manufactured home construction and safety standards for all locations within U/O value zone \_\_\_\_\_. (See map at bottom)  
Heating equipment manufacturer and model (See list at left)  
The above heating equipment has the capacity to maintain an average 70° F temperature in this home at outdoor temperatures of \_\_\_\_\_° F.  
To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97.12%) is not higher than \_\_\_\_\_ degrees Fahrenheit.  
The above information has been calculated assuming a maximum wind velocity of 15 mph at standard atmospheric pressure.

**COMFORT COOLING**  
 Air conditioner provided at factory (Alternate I)  
Air conditioner manufacturer and model (see list at left)  
Certified capacity \_\_\_\_\_ B.T.U./hour in accordance with the appropriate air conditioning and refrigeration institute standards.  
The central air conditioning system provided in this home has been sized assuming an orientation of the front (back end) of the home facing \_\_\_\_\_. On this basis the system is designed to maintain an indoor temperature of 75° F when outdoor temperatures are \_\_\_\_\_° F dry bulb and \_\_\_\_\_° F wet bulb.  
The temperature to which this home can be cooled will change depending upon the amount of exposure of the windows of this home to the sun's radiant heat. Therefore, the home's heat gains will vary dependent upon its orientation to the sun and any permanent shading provided. Information concerning the calculation of cooling loads at various locations, window exposures and shadings are provided in Chapter 22 of the 1989 edition of the ASHRAE Handbook of Fundamentals.  
Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this home.  
 Air conditioner not provided at factory (Alternate II)  
The air distribution system of this home is suitable for the installation of central air conditioning.  
The supply air distribution system installed in this home is sized for a manufactured home central air conditioning system of up to \_\_\_\_\_ B.T.U./hr. rated capacity which are certified in accordance with the appropriate air conditioning and refrigeration institute standards, when the air circulators of such air conditioners are rated at 0.3 inch water column static pressure or greater for the cooling air delivered to the manufactured home supply air duct system.  
Information necessary to calculate cooling loads at various locations and orientations is provided in the special comfort cooling information provided with this manufactured home.  
 Air conditioning not recommended (Alternate III)  
The air distribution system of this home has not been designed in anticipation of its use with a central air conditioning system.  
To determine the required capacity of equipment to cool a home efficiently and economically a cooling load (heat gain) calculation is required. The cooling load is dependent on the orientation, location and the structure of the home. Central air conditioners operate most efficiently and provide the greatest comfort when their capacity closely approximates the calculated cooling load. Each home's air conditioner should be sized in accordance with Chapter 22 of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals, 1989 edition, once the location and orientation are known.

**INFORMATION PROVIDED BY THE MANUFACTURER NECESSARY TO CALCULATE SENSIBLE HEAT GAIN**

Walls (without windows and doors) \_\_\_\_\_ °F  
Ceilings and roofs of light color \_\_\_\_\_ °F  
Ceilings and roofs of dark color \_\_\_\_\_ °F  
Floors \_\_\_\_\_ °F  
Air ducts in floor \_\_\_\_\_ °F  
Air ducts in ceiling \_\_\_\_\_ °F  
Air ducts installed outside the home \_\_\_\_\_ °F

The following are the duct areas in this home:

Air ducts in floor \_\_\_\_\_ sq ft  
Air ducts in ceiling \_\_\_\_\_ sq ft  
Air ducts outside the home \_\_\_\_\_ sq ft

**ZONES U-VALUES**  
1 0.118  
2 0.096  
3 0.079

FD-60 (Rev. 0-84) by REV. 10-91

NOTE- Pennsylvania design criteria:  
Home manufactured after OCTOBER 1994 - **CLIMATE ZONE 3.**  
Homes manufactured between June 1976 – October 1994 - **CLIMATE ZONE 2.**

### **Egress Windows**

Every bedroom shall have at least one outside window or approved exit device. Egress windows must have a minimum clear opening of 20" wide and 24" high and five square feet in area.

The bottom of the window opening shall not be more than 36 inches above the floor. Locks, latches, operating handles, tabs and any other window screen or storm window device which must be operated in order to permit exiting, shall not be located in excess of 54 inches from the floor. An operational check of each window shall be made to demonstrate the ability of the window to open without difficulty or requiring the use of tools, keys or special knowledge or skills.

### **Exit Doors**

The home is required to have at least two exterior exit doors remotely located from each other. There must be one exit door within 35 feet of travel from each bedroom door.

All exterior doors shall provide a minimum 28-inch wide by 74-inch high clear opening. All exterior sliding glass doors shall provide a minimum 28-inch wide by 72-inch opening.

Exterior doors must be equipped with proper hardware. Locks shall not require the use of a key for operation from the inside. Exterior doors must be weather tight and operate without binding.

### **Safety Glazing**

*For homes constructed before June 9, 2014*, glazing in all entrance or exit doors, sliding glass doors (fixed or moving sections), unframed glass doors, un-backed mirrored wardrobe doors (i.e. mirrors not secured to a backing capable of being the door itself), shower and bathtub enclosures and surrounds to a height of six feet above the bathroom floor, storm doors or combination doors, and in panels located within 12 inches on either side of exit or entrance doors shall be of safety glazing or safety backed material.

*For homes constructed on or after June 9, 2014*, the following hazardous locations require safety glazing: glazing in all entrance or exit doors; glazing in fixed and sliding panels of sliding glass doors, glazing in storm type doors; unframed side hinged doors; any glazing that encloses bathtubs, showers, hydro massage tubs, hot tubs, tubs, whirlpools, saunas less than 60" above the room floor level, glazing in rails and guardrails and unbacked wardrobe mirrors.

Additionally safety glazing is required when placed within 12" of a door (measured in closed position and less than 60" from the room floor level).

For glazing within 36" of the floor, that is greater than 9 square feet; with a bottom edge less than 19" and the top edge greater than 36" above the floor, safety glazing or a suitable guard is required.

### **Interior Doors**

Interior doors shall fit reasonably well within their frames, and shall operate without binding. Interior doors must be equipped with proper hardware installed in a manner so that persons cannot be locked inside a room.

## **Smoke Alarms**

For homes constructed before September 16, 2002, smoke detectors are required in the hallway outside each bedroom area.

The smoke detector may be powered by the electrical system of the home or battery powered.

For homes constructed after September 16, 2002, smoke alarms must be located in all bedrooms. An additional smoke alarm must be located to provide protection to the living area/kitchen space of the home. All smoke alarms must be interconnected, powered by the electrical system of the home as a primary power source and a battery as a secondary source of power.

For all manufactured homes the smoke alarm (or detector as the case may be) shall have no switches in the circuit between the over-current protection device (circuit breaker) protecting the branch circuit and the alarm. Smoke alarms (or detectors) shall not be placed on any circuit protected by a ground-fault circuit interrupter.

## **Carbon Monoxide Alarms**

For homes equipped with fuel burning appliances, carbon monoxide alarms should be installed according to the device instructions.

## **Exterior Coverings - Siding and Roofing**

All exterior coverings shall be free of holes, breaks, loose materials or other conditions that might admit pests, wind, snow, rain or dampness to the interior or concealed portions of the manufactured home.

Roofs shall be free from obvious defects, maintained in a safe manner to prevent pests, water or dampness in the interior or concealed portion of the home.

## **Sanitary Facilities**

Every manufactured home shall contain its own bathtub or shower, lavatory, water closet and kitchen sink which are safe and in working condition. Every plumbing fixture, water line and drain line shall be in good sanitary working condition free from defects, leaks and obstructions.

Water supply lines must be protected from freezing. Drain lines installed under the manufactured home must be properly sloped (1/4" per foot) and supported in a manner so that they do not hold water.

The kitchen sink, lavatory and tub or shower shall have an adequate supply of both cold water and hot water. All water shall be supplied through a suitable distribution system connected to a potable water supply.

## **Water Temperature Limiting Devices** *(For homes manufactured after June 9, 2014)*

Shower and tub-shower combination valves must be balanced pressure, thermostatic, or combination mixing valves that are adjustable to a maximum setting of 120°F. Hot water supplied to bathtubs and whirlpool bathtubs must be limited to a temperature of not greater than 120°F.

## **Heating**

Every manufactured home shall have heating facilities that are properly installed and maintained in safe and good working condition, capable of safely and adequately heating all habitable rooms and bathrooms.

## **Ventilation**

*Manufactured homes produced after October 25, 1993* shall be provided with ventilation systems for the whole house as well as the kitchen and each bathroom or toilet compartment. Whole house ventilation is often accomplished through the independent operation of the furnace blower (if the furnace is equipped with a fresh air intake duct), or through an exhaust fan located in the laundry room area. One of these systems shall be in place and operable.

Kitchens, bathrooms and toilet compartments in *manufactured homes produced after October 25, 1993* shall be provided with a mechanical ventilation system exhausting to the outside of the home.

## **Clothes Dryer Exhaust Ducts**

All gas and electric clothes dryers shall exhaust to the outside of the home. The exhaust duct shall not attach to any other duct, vent or chimney. Metal screws or similar fasteners that protrude to the interior of the duct system are prohibited. Duct materials used for this purpose must be approved by the manufacturer of the clothes dryer.

## **Fuel-Burning Appliances**

All fuel-burning appliances, except ranges, ovens, clothes dryers, solid fuel-burning fireplaces and stoves, shall be installed to provide for the complete separation of the combustion system from the interior atmosphere of the manufactured home.

All fuel-burning appliances, except ranges and ovens, shall be vented to the outside. Unvented fuel burning heaters or fireplaces are prohibited.

All heat-producing appliances must be listed "for use in manufactured housing" and be installed according to the product listing.

## **Cooking Range Anti-Tip Bracket**

To reduce the risk of tipping the range, the range must be secured by a properly installed anti-tip device. To check if the device is installed correctly, slide the range forward, look for the anti-tip bracket securely attached to the floor, and slide the range back so the rear range foot is under the anti-tip bracket.

## **Fire-blocking**

Fire-blocking (as defined at 24 CRF 3280.206) must be installed around the openings for pipes, vents and other penetrations in walls, floors and ceilings of furnace and water heater spaces. Material used for fire-blocking purposes must be non-combustible or limited combustible types (typically gypsum).

Furnace and water heater compartments must be inspected to assure fire-blocking is adequately installed to eliminate all communication into the roof cavity.

## **Water Heater Drip Pan**

*Homes constructed on or after May 30, 2006:* A corrosion resistant water drip collection and drain pan must be installed under each water heater that will allow leaking water to drain to the exterior of the manufactured home.

## Electrical Systems

All electrical junction boxes and fixtures shall be properly installed with appropriate cover plates, fixture canopy, etc.

Ground fault Circuit Interrupter (GFCI) protection is required for all:

- Receptacles in bathrooms (except a dedicated receptacle for a washer or dryer)
- Exterior receptacles
- Receptacles serving a countertop within six feet of a sink
- Hydro massage tub motors
- Receptacles within 6 feet of a wet bar sink (*For homes manufactured after June 9, 2014*)
- Heat tape receptacles (*For homes manufactured after June 9, 2014*)

Fixtures located on the exterior of the home shall be properly installed and suitable for the location. Exterior receptacles shall be protected with a cover listed for exterior use.

The Manufactured Home Construction and Safety Standards require that the neutral (grounded) conductor and the grounding conductors be isolated. At the panel box, the bonding screw or strap shall be removed and discarded. The neutral conductor (usually the white conductor), shall not be connected to the ground bus. Likewise, ground conductors should not be connected to the neutral bus.

Bonding straps in 240-volt appliances such as electric range, clothes dryers, counter cook tops and ovens must be removed and discarded.

No electrical wiring shall be exposed under the home. Electrical crossovers must be completed in a junction box or utilize suitable connector devices.

NOTE: Many snap-type electrical connectors are one-time use only. Do not reuse these connectors. Properly installed junction box or new connectors should be installed to replace these connectors.

## Bottom Board

The bottom board material (often plastic sheet type of material installed on underside of the floor) shall be free from damage (tears and holes). Significant heat loss as well as deterioration of the home is possible if holes in the bottom board are not repaired.

Bottom board patches must be of suitable material intended for bottom board closure.

Tape alone should not be used to repair bottom board. Divergent staples or mastic must be used in tandem with tape to avoid future tear-off.

Bottom board must terminate along the edge of the floor in a manner to prevent rain water from entering.

# Habitability Checklist for Relocated Manufactured Homes

Complete and sign this checklist to certify compliance with the Habitability Guide for Relocated Manufactured Homes. All items must be correct. A completed checklist must be submitted to the local building code official as part of the building permit process.	
1. HOME SERIAL NUMBER:	2. YEAR OF MANUFACTURE
3. ADDRESS OF INSTALLATION:	
4. PERMIT APPLICANT OR AGENT NAME:	5. PERMIT APPLICANT OR AGENT SIGNATURE:

## Data Plate, Serial Number & Certification Label

- Locate the serial number from the front chassis crossmember and the certification labels from the exterior siding. Cross reference to the data plate in the home. *See page 2.*
- Verify the home was certified as a manufactured home and that it was designed and constructed for the Pennsylvania climate zone.

## Floors

- Floor is structurally sound. Floor coverings are secure and do not present tripping hazards.
- Floor insulation is properly installed in floor cavity, especially at access areas.
- Bottom Board is patched and secure. *See page 6.*

## Walls

- Walls are structurally sound, without holes, breaks or protrusions.
- Doors and windows are operational with proper glazing. *See page 3.*
- Doors are equipped with proper hardware. *See page 3.*
- Safety glazing is provided where required. *See page 3.*

## Exterior Coverings

- Roofing material free from obvious defects, holes, etc.
- Roof caps, vents, flashing, etc. are properly installed. Fireplace chimneys are the proper height (3' above the roof where it passes and 2' higher than any part of the building with 10' of the chimney).
- Siding material is free from obvious defects, holes, etc. and is properly channeled or sealed around penetrations.

## Sanitary Facilities

- Plumbing system is in good working order and free from defects, leaks and obstructions. *See page 4.*
- Drain piping under the floor is properly sloped and supported every 4'. *See page 4.*
- Water supply line crossover insulation and covers are properly installed.
- Hot water appliance is properly installed and in good working order.
- Water temperature limiting device must be set properly, for home constructed after June 9, 2014, *see page 4.*

## Ventilation

- Clothes dryer exhaust ducts terminate outside of the skirting crawl space enclosure. *See page 5.*
- Kitchen, bath and toilet compartment fans are operational. *For homes built after Oct 25, 1993, see page 5.*

## Heating

- Heating facilities are in working order.
- Registers and grills are in place at all outlets and intakes for the heating system.

## Fuel Burning Appliances

- All vents, flu pipes, chimneys, etc. are properly installed, and are free from rust, damage or any condition that could result in a leak of combustion gases into the home. *See page 5.*
- Fire-blocking is adequately installed where vents, flu pipes, chimneys or other penetrations are present in the ceiling or walls inside furnace and water heater compartments. *See page 5.*
- Fuel supply piping is properly installed and supported.
- Fuel supply piping has been tested for leaks by qualified personnel.
- Cooking range anti-tip bracket is properly installed. *See page 5.*

## Electrical Systems

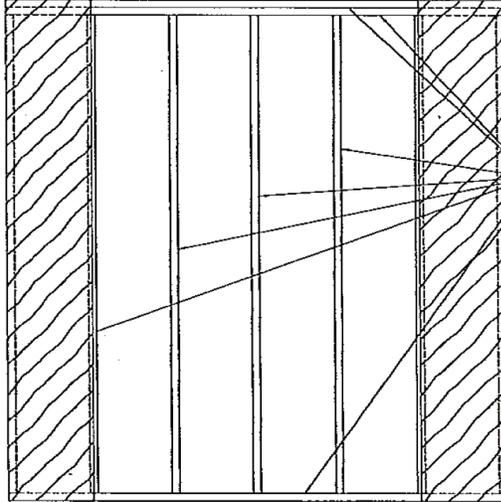
- All electric receptacles, switches, junction boxes, fixtures, etc. are properly installed with appropriate cover plates. *See page 6.*
- All electrical crossovers are properly assembled and secured. *See page 6.*
- Operational test assured that all electrical devices operate properly.
- Ground Fault Circuit Interrupters (GFCI) where required, test and reset properly. *See page 6.*
- All exposed metal parts likely to be energized have been bonded.
- Proper smoke detectors/alarms placement and operation. *See page 4.*
- Proper carbon monoxide alarm placement and operation, if applicable. *See page 4.*

## Appendix

---

Should repairs be necessary to make the home habitable, the following basic repair methods may be utilized for simple repairs to walls, floors and ceilings. More involved repairs may require approved designs from the manufacturer or engineering analysis if the appropriate manufacturer's designs are not available.

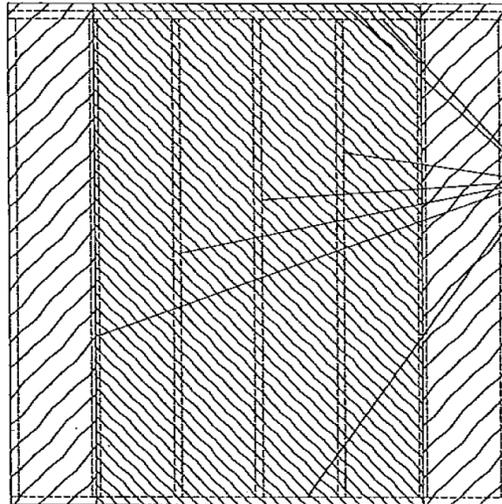
## APPENDIX A - WALL PANEL REPAIR / REPLACEMENT



1. Remove all damaged panels and remaining adhesives from the framing members. Be sure all framing members are clean and dry.

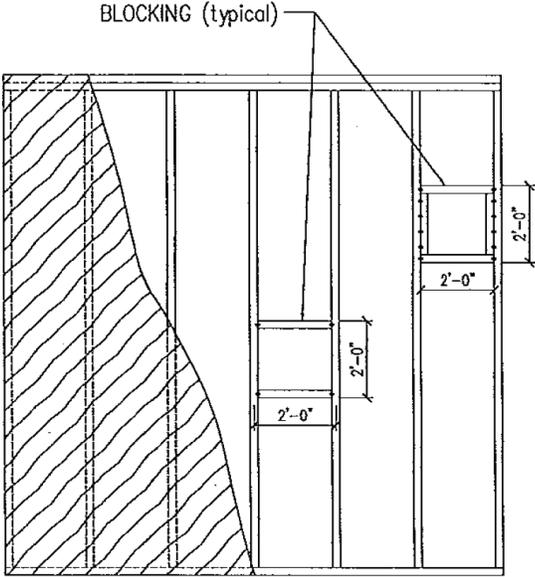
2. Apply a 1/4 inch diameter bead of polyvinyl acetate (PVA) adhesive on all framing members, including the top and bottom plates.

### A | WALL FRAMING PREPARATION



Use a minimum 1 1/2 inch long drywall screws, nails or staples at 6 inches on center along the panel edge and 12 inches on center in the field to the framing members. It is particularly important to pay attention to these details at the top and bottom of the applied panel.

### B | WALL PANEL ATTACHMENT



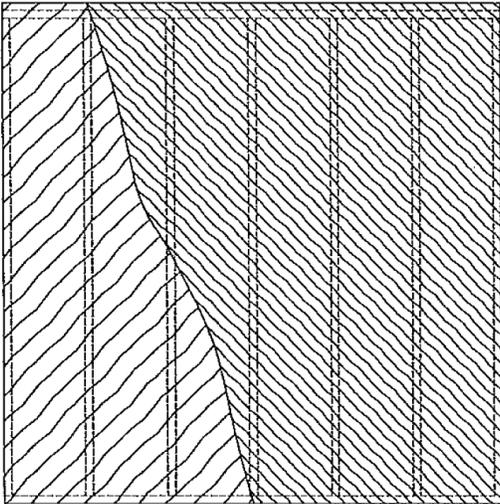
BLOCKING (typical)

Damaged Wall board "patch" material shall be an equivalent thickness of gypsum  
 - Maximum patch size 24"x24"  
 - Blocking shall be nominal 1"x3" lumber of the same species as the adjacent wall studs

Repair procedure:  
 1. Remove/cut out damaged wall board area.  
 2. Install required blocking.  
 3. Attach the patch board to blocking or wall stud using any of the approved mechanical fasteners at 6" on center along the perimeter and use an approved gypsum wall board adhesive.

Fasten blocking as follows:  
 Use (2)7/16"x2 1/2" 15 ga. staples at each end of the horizontal block.  
 Use 7/16"x2 1/2" 15 ga. staples at 3" on center to fasten vertical block to side of stud.

C GYPSUM WALL PANEL REPAIR

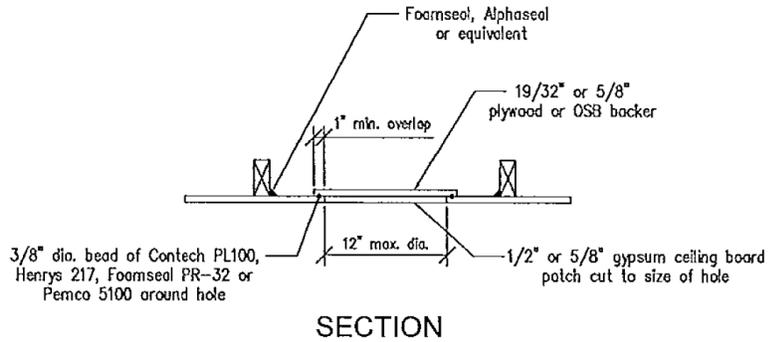
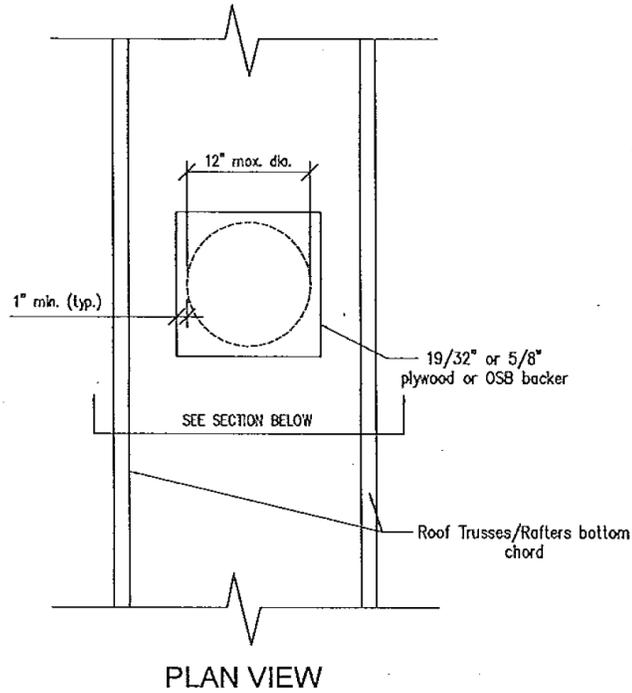


Any interior wall surface may be overlaid with an additional gypsum wall panel in lieu of removing the existing panels. The overlay panel must be securely fastened. The fastener length is to be increased by a minimum of the thickness of the gypsum panel being overlaid.

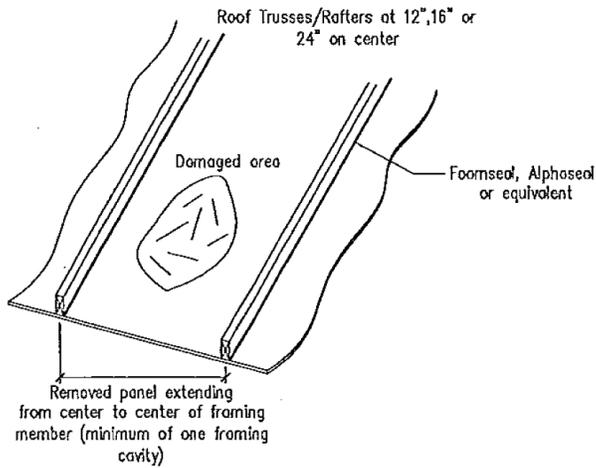
Example: 1 1/2" long fasteners are required for the first layer of gypsum. A 1/2" overlay gypsum panel is added due to extensive wall damage on the first layer. The fastener length for the overlay panel is 2" minimum in length.

D WALL PANEL OVERLAY

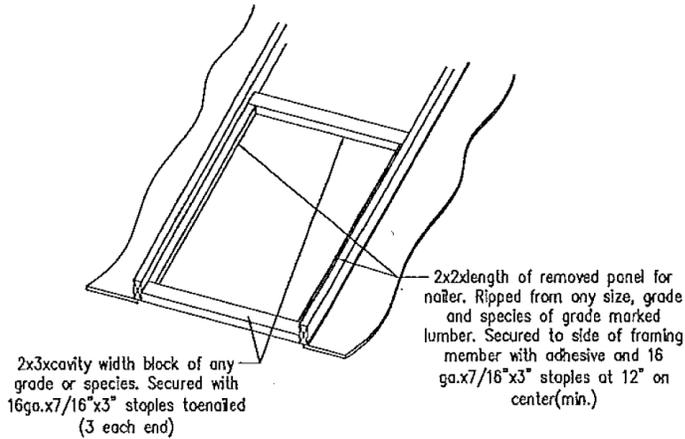
### APPENDIX B - CEILING PANEL REPAIR



## APPENDIX B - CEILING PANEL REPAIR / REPLACEMENT



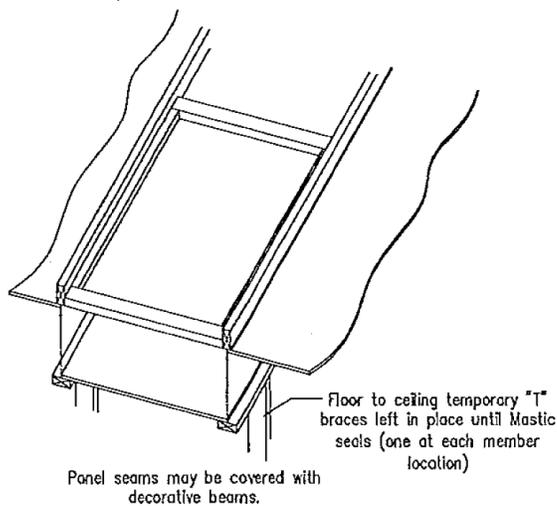
STEP 1: Remove damaged section. Scrape all foam material from underside of framing member.



STEP 2: Add a 2x3 (min.) block at each end of the removed panel to provide a surface for attachment of the new panel.

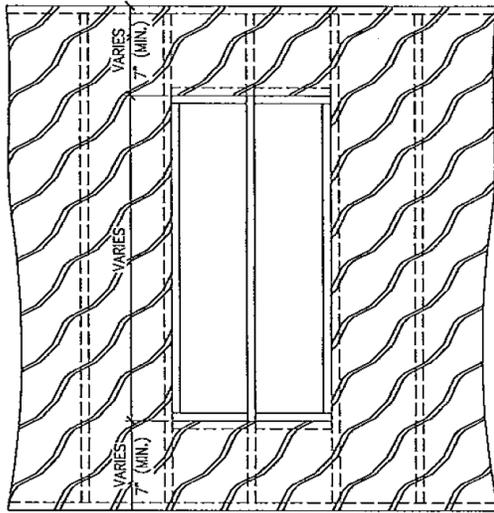
\* Note: The replacement panel may have to pass over an interior partition wall in order to reach an adjacent framing member.

\* Important: It is imperative to replace damaged or displaced insulation with the same R-value.



STEP 3: Secure the replacement panel to the framing using 3/8" bead of glue applied to all perimeter and field framing members.

APPENDIX F - FLOOR PANEL REPAIR / REPLACEMENT

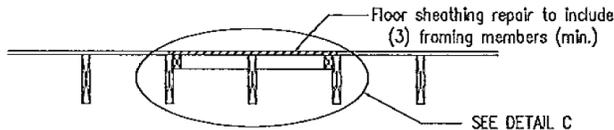


1. Remove all damaged floor sheathing using a circular saw. Broken edges of floor decking should be cut straight and clean. Adjust the depth of the cut and use caution as not to cut into the floor joists or any strong backs or blocking that may be present. Typical floor sheathing is 15/32" thick. Remove all prior adhesives and fasteners and be sure all framing members are clean and dry.

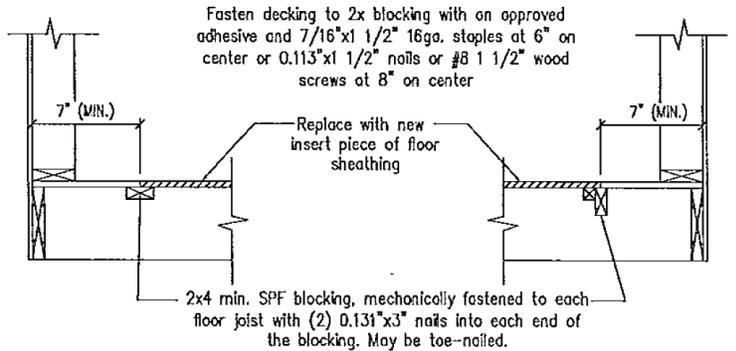
2. If necessary, apply a minimum 2"x2" ledger to the side of the floor joist. 1/4" glue bead (full length) and mechanically fasten to the floor joist with 7/16"x2 3/4" 15 ga. staples at 6" on center OR 0.113"x3" nails at 8" on center.

3. Use an approved wood adhesive to all framing members and use 7/16"x1 1/2" 16 ga. staples at 6" on center OR 0.113"x1 1/2" nails OR #8 wood screws at 8" on center at both edges and through the field.

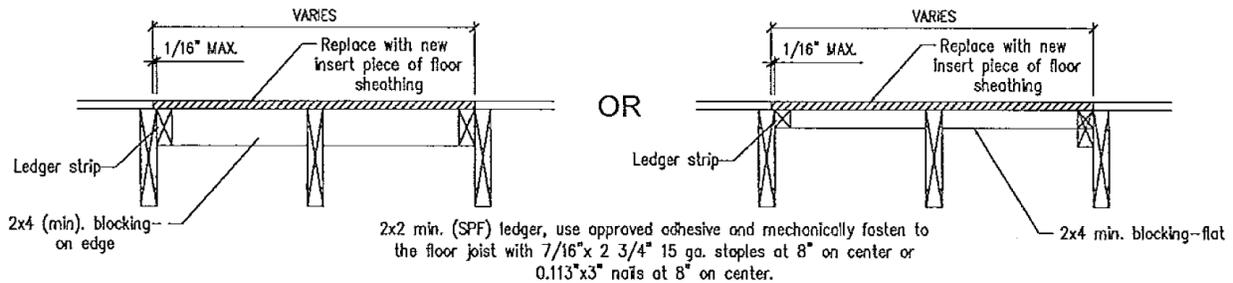
4. Any unsupported edges of floor sheathing must be blocked. Use a minimum 2x4 SPF stud grade or better, blocking spanned and mechanically fastened to each floor joist with (2) 0.131"x3" nails into each end of blocking. May be toe-nailed.



A FLOOR PANEL REPAIR / REPLACEMENT



B CROSS SECTION OF FLOOR REPAIR



C FLOOR REPAIR CROSS SECTION