GARAGES
ONE-STORY

City of Lawrence

Department of Public Works
317-545-8787
www.cityoflawrence.org

PLANS

In order to obtain permits for a new garage or garage addition building plans must be submitted with a structural permit application. Plans must be neatly drawn and to scale (at least 1/8" = 1 ft. min.) on 11 x 17 paper (minimum). Plans must include a site plan, floor plan, cross section and elevation. Plans should show the proposed size of the garage; location and size of window and door openings; size of headers over all window and door openings; size, spacing, and direction of rafters or trusses; rafter/truss connection method; size and spacing of studs; the grade and species of lumber to be used; the type of roof and wall sheathing used; information on siding and roofing; and any other pertinent information.

You will also be required to obtain an Improvement Location Permit from the Department of Business and Neighborhood Services in Marion County. Please visit their website at https://www.indy.gov/activity/residential-development-permits for more information.

FOUNDATIONS

Detached garages that do not exceed 1000 square feet may be constructed on a thickened-edge slab. Detached garages over 1000 square feet and attached garages must be constructed on a foundation extending at least 30 inches below finished grade.

WALL CONSTRUCTION

Walls may be framed with minimum No. 3 grade studs spaced 16 or 24 inches on center. Utility grade studs may be used when supporting only a roof, spaced not more than 16 inches on center, and limited to 8 feet in height. All other studs shall be limited to ten feet in height. If a single top plate is used, rafters or trusses must be centered over studs and shall meet the requirements of R602.3.2 and Table R602.3.2.

WALL BRACING

All walls are required to be braced at each end of each wall by one of the following methods:

- Nominal 1X4 continuous diagonal braces let in to top and bottom plates and the intervening studs or approved metal straps installed in accordance with the manufacture's specifications. Braces must be installed at an angle not to exceed 60 degrees or less than 45 degrees.
- 4X8 wood structural panel sheathing not less than 3/8 inch for 16-inch stud spacing. For 24-inch stud spacing sheathing not less than 7/16 inch must be attached with a minimum of 8d nails at 12 inches on center.

- 4X8 structural fiberboard sheathing not less than ½ inch thick applied vertically on studs spaced 16 inches on center. Sheathing must be attached with 1½ inch galvanized roofing nails, 6d common nails, or 16 ga 1½ inch staples spaced 3 inches on center around the perimeter and 6 inches on center on intermediate studs.

When garages are fully sheathed with wood structural panel sheathing, wall segments on either side of garage openings that support light frame roofs only with roof covering dead loads of 3 psf or less shall be permitted to have a 4:1 aspect ratio. For narrower wall segments, see the last page of this handout.

ROOF TRUSSESS

Wood trusses may be used as long as they are designed to meet state snow load requirements. Truss design drawings must be provided.

GARAGE DOORS

Garage doors must meet minimum wind resistance standards and must come with a label indicating the door complies with ANSI/DASMA 108.

GARAGE DOOR OPENERS

State law requires that all automatic garage door openers sold and installed be equipped with an automatic reversing device. This means that the door must have a means to reverse the closing function if something is detected in the path of the door.

SMOKE ALARMS, CARBON MONOXIDE ALARMS, FIRE WALLS

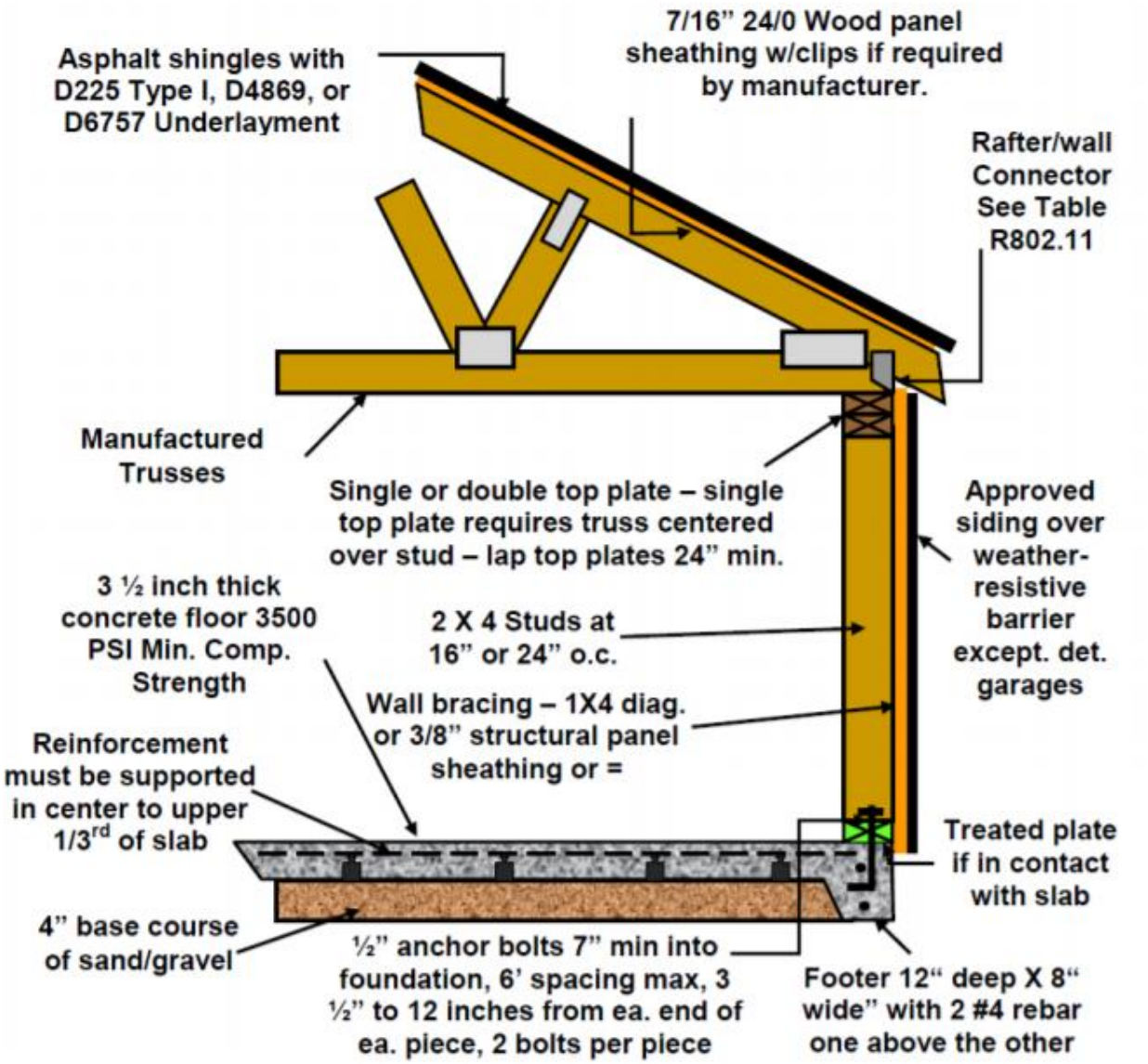
Smoke alarms are required to be installed in the dwelling when an attached garage is constructed or an existing attached garage is expanded. Carbon monoxide alarms must be installed in a dwelling when any work requiring a permit occurs. A fire wall must be created between a dwelling and a garage if an attached garage is constructed or, in some cases, when an existing attached garage is expanded. Contact the Building Department for specifics.

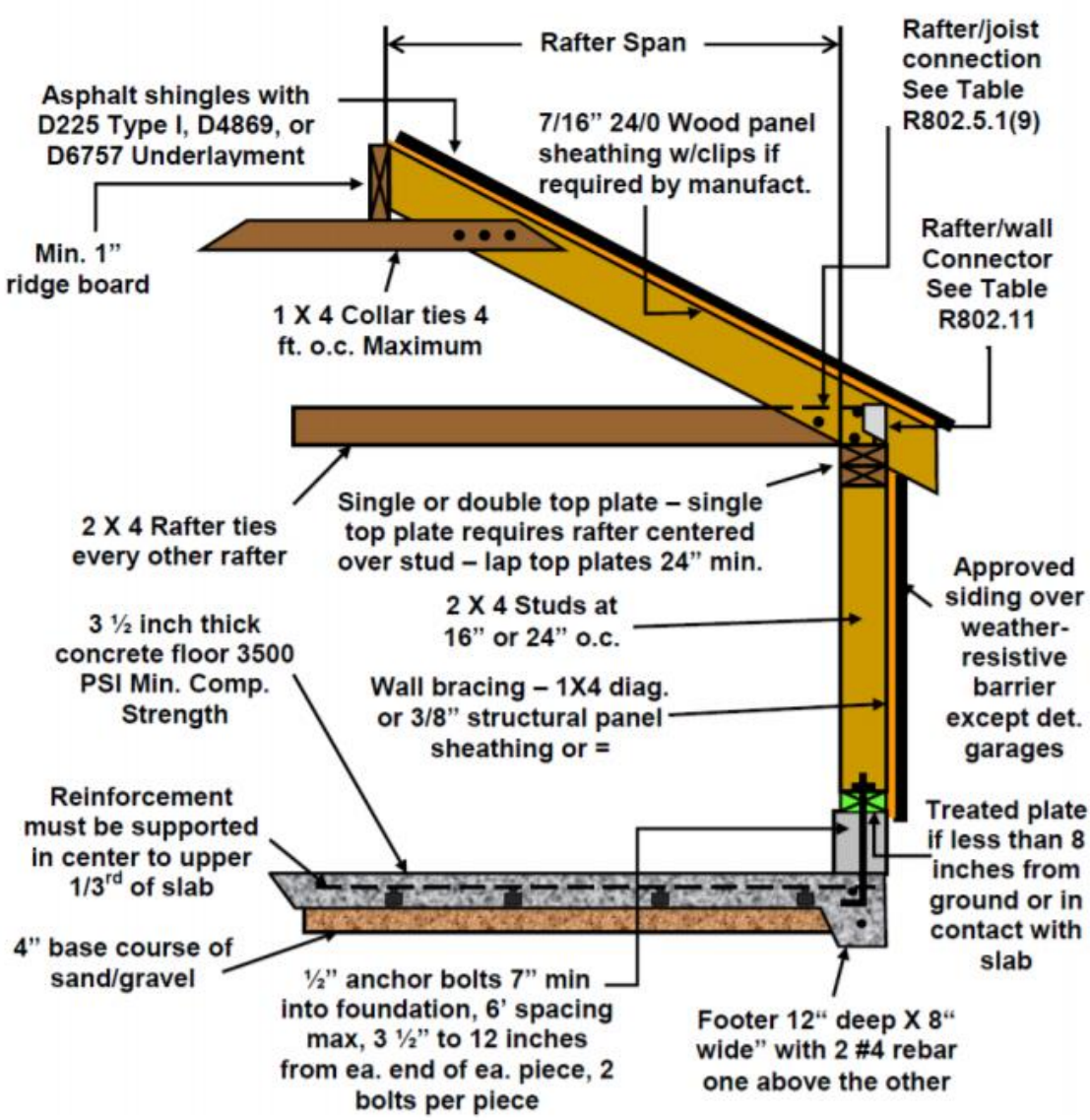
INSPECTIONS

It is the responsibility of the permit applicant to call the Building Department to arrange for the inspections. 24-48 hour advance notice is required. Inspections typically required for the construction of a garage are:

- Footing and foundation inspections after form work is in place but prior to pouring concrete.
- Slab Inspection – To be made after all formwork, plumbing, electrical and hvac (if any) and reinforcing is in place but prior to the pouring of concrete.
- Framing Inspection – To be made after all framing and bracing is complete, rough electrical, plumbing and hvac (if any) and roofing is installed.
- Final Inspection – To be made upon completion of the garage and grading is complete.

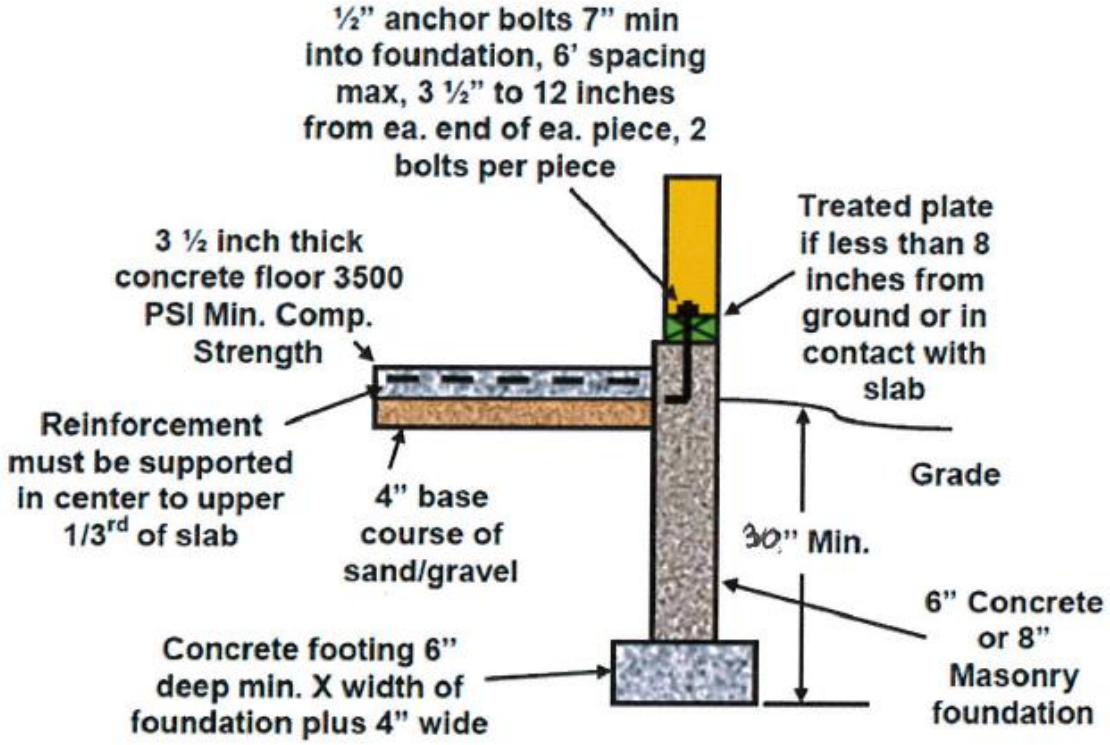
HEADER SIZES SUPPORTING SPANS OF 20, 24, AND 28 FT						
	20 Ft		24 Ft		28 Ft	
Span	Header Size	# Jack Studs	Header Size	# Jack Studs	Header Size	# Jack Studs
Up to 3 ft	2-2X4	1	2-2X4	1	2-2X6	1
Up to 4 ft	2-2X6	1	2-2X6	1	2-2X6	1
Up to 6 ft	2-2X8	2	2-2X10	2	2-2X10	2
Up to 7 ft	2-2X10	2	2-2X12	2	2-2X12	2
Up to 8 ft	2-2X12	2	3-2X10	2	3-2X10	2
Up to 9 ft	3-2X10	2	3-2X12	2	3-2X12	2
Up to 10 ft	3-2X12	2	4-2X12	2	4-2X12	2
Up to 12 ft	4-2X12	2	*EWPR		*EWPR	
Over 12 ft	*EWPR		*EWPR		*EWPR	
*Engineered wood product required						


Asphalt shingles with D225 Type I, D4869, or D6757 Underlayment
7/16" 24/0 Wood panel sheathing w/clips if required by manufacturer.
Rafter/wall Connector See Table R802.11
Manufactured Trusses
Single or double top plate – single top plate requires truss centered over stud – lap top plates 24" min.
Approved siding over weather-resistive barrier except. det. garages
3 ½ inch thick concrete floor 3500 PSI Min. Comp. Strength
2 X 4 Studs at 16" or 24" o.c.
Wall bracing – 1X4 diag. or 3/8" structural panel sheathing or =
Reinforcement must be supported in center to upper 1/3rd of slab
Treated plate if in contact with slab
4" base course of sand/gravel
½" anchor bolts 7" min into foundation, 6' spacing max, 3 ½" to 12 inches from ea. end of ea. piece, 2 bolts per piece
Footer 12" deep X 8" wide" with 2 #4 rebar one above the other

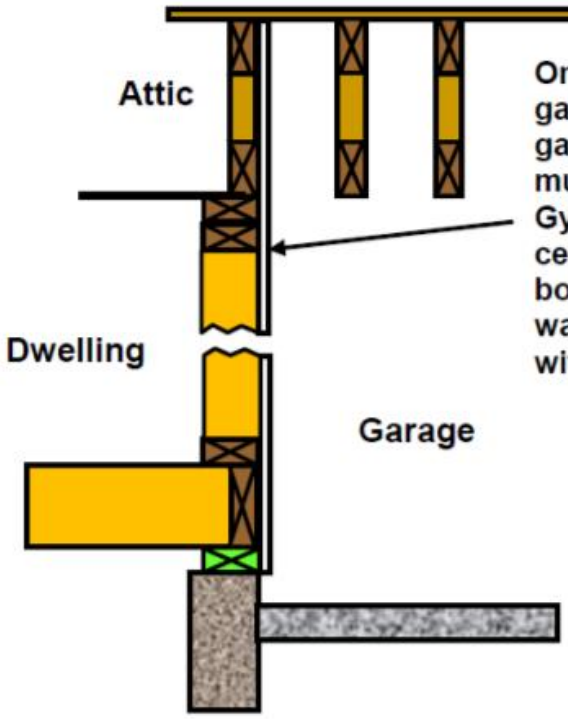


RAFTER SPANS FOR #2 HEM FIR AND SPF					
		2 x 4	2 x 6	2 x 8	2 x 10
12" o.c.	Hem Fir	7'5"	11'1"	14'0"	17'2"
	SPF	7'8"	11'3"	14'3"	17'5"
16" o.c.	Hem Fir	6'7"	9'7"	12'2"	14'10"
	SPF	6'8"	9'9"	12'4"	15'1"
24" o.c.	Hem Fir	5'4"	7'10"	9'11"	12'1"
	SPF	5'5"	7'11"	10'1"	12'4"

FOUNDATION DETAIL FOR ATTACHED GARAGE

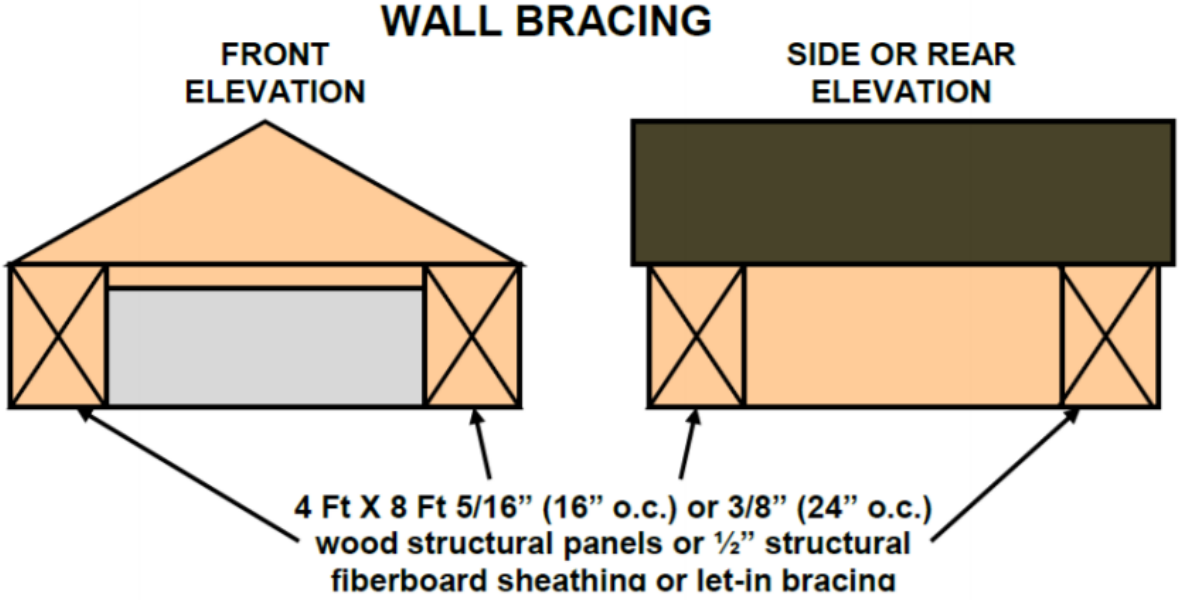


SEPARATION WALL DETAIL FOR ATTACHED GARAGE

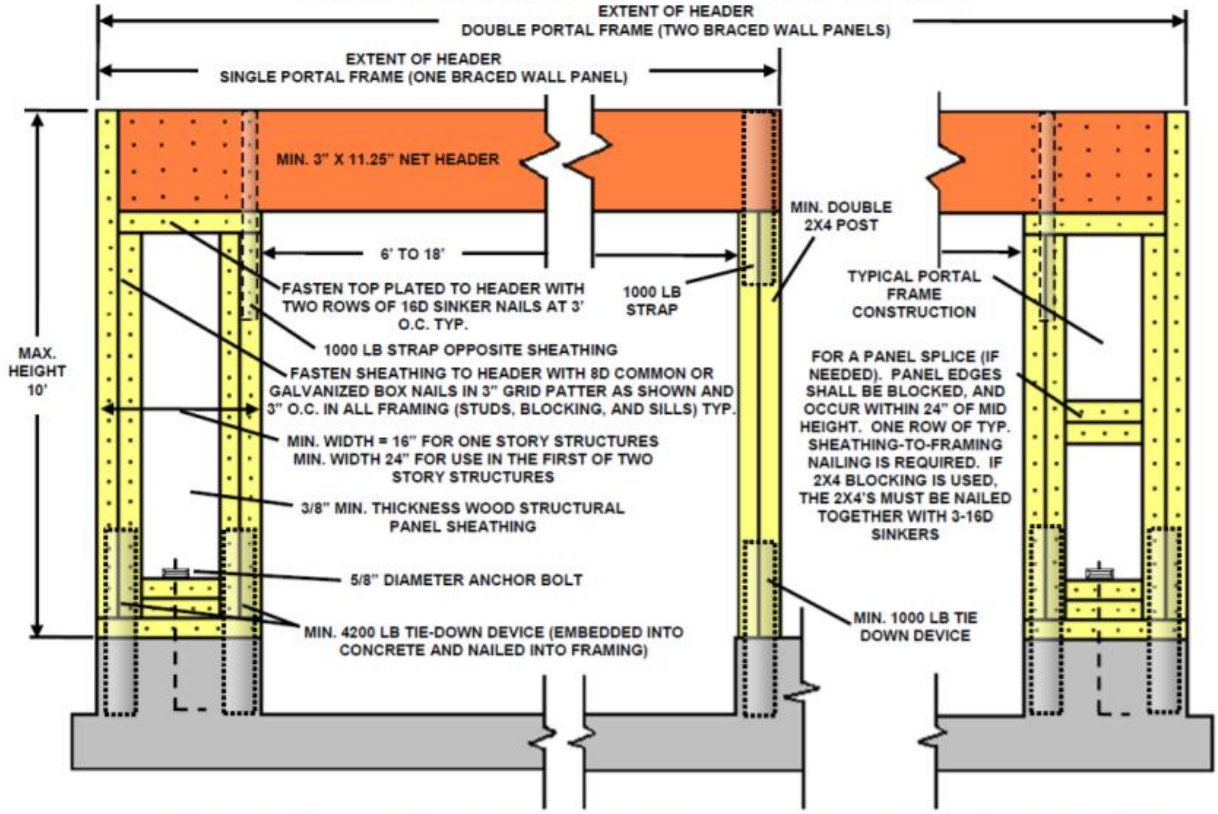


One layer ½" gypsum board applied on garage side of wall between house and garage. No windows. Doors to dwelling must be solid wood or metal. Alt. Gypsum board may stop at ceiling if ceiling is covered with ½" gypsum board (5/8" if living space above) and walls supporting the ceiling are covered with ½" gypsum board.

WALL BRACING



WALL BRACING FOR NARROW WALLS



ALTERNATE BRACED WALL PANEL ADJACENT TO A DOOR OR WINDOW OPENING