



Fire & Sound Transmission Class rating requirements between attached dwellings per the 2012 International Residential Code

Juneau Permit Center, 4th Floor Marine View Center, (907) 586-0770

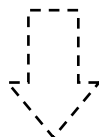
2012 IRC section R302 and Appendix K requires walls and floor/ceilings between adjacent dwelling units to be of one hour fire resistive construction, and provide a minimum Sound Transmission Control (STC) rating of 45. The designs shown on this handout are samples from the Fire Resistance Design manual published by the Gypsum Association that meet these requirements and may be used in residential construction in the City and Borough of Juneau.

Key points to consider when choosing a fire & sound separation design:

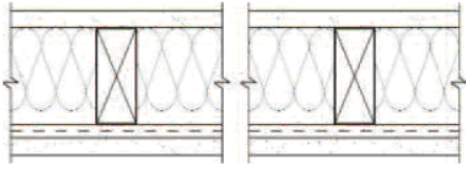
- There are thousands of other listed assemblies and product designs that may be used, but it is the responsibility of the applicant to provide documentation such as lab test results, spec sheets and product data to the Building Department for review and approval prior to construction.
- When using “I” joists in a rated assembly you can also refer to the joist manufacturer to find any pre tested/listed systems that may work for your project. No more than 3½ “ fiberglass insulation can be used in fire rated floor assemblies built with engineered “I” joists without having the insulation suspended off of ceiling and leaving a minimum air space of 4½” between the insulation and the ceiling. If 4½” inches of airspace cannot be achieved or is not desired then an additional layer of the specified gypsum board is required on the ceiling.
- No substitution, changes or deviation of an approved design may be made. Each system is tested and can only be approved as it is listed. In most cases ½” type X gypsum may be substituted with 5/8” type X and nominal joist lumber may be larger than specified as long as the strength and deflection capacities meet minimum per code. Check with your assigned plan reviewer if any of these substitutions are needed for your project.
- Membrane and through penetrations of fire rated assemblies must comply with the IRC section R302.4. This refers to plumbing and electrical elements that penetrate one or both sides of the fire rate wall or floor assembly.
- The assemblies shown on the reverse side are not for use between zero lot line situations or exterior walls that are required to be fire rated.
- Hundreds of additional wall and floor/ceiling assemblies can be located on the web, below are a few recommended sites.

<http://www.gypsum.org/> <http://www.awc.org/> <http://www.usg.com/> <http://nationalgypsum.com/>

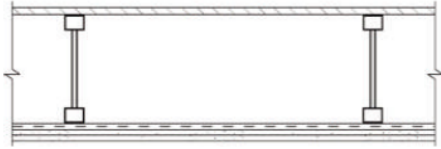
Over for Example Assemblies

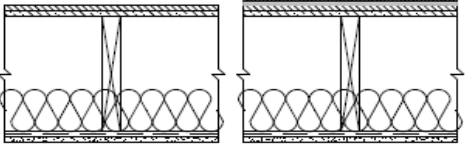


WALL ASSEMBLY

GA FILE NO. WP 3243	GENERIC	1 HOUR FIRE	50 to 54 STC SOUND
GYPSUM WALLBOARD, RESILIENT CHANNELS, MINERAL OR GLASS FIBER INSULATION, WOOD STUDS			
<p>Resilient channels 24" o.c. attached at right angles to ONE SIDE of 2 x 4 wood studs 24" o.c. with 1 1/4" Type S drywall screws. One layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to channels with 1" Type S drywall screws 8" o.c. with vertical joints located midway between studs. 3" mineral or glass fiber insulation in stud space.</p> <p>OPPOSITE SIDE: One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to studs with 6d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c.</p> <p>Vertical joints staggered 24" on opposite sides. (LOAD-BEARING)</p>		<p>Thickness: 5 3/8" Approx. Weight: 7 psf Fire Test: Based on UL R14196, 05NK05371, 2-15-05, UL Design U309 Sound Test: NRCC TL-93-103, IRC-IR-761, 3/98</p>	

FLOOR CEILING ASSEMBLIES

FLOOR-CEILING SYSTEMS, WOOD FRAMED			
GA FILE NO. FC 5241	GENERIC	1 HOUR FIRE	45 to 49 STC SOUND
WOOD I-JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS			
<p>Base layer 1/2" type X gypsum wallboard applied at right angles to resilient channels 16" o.c. with 1 1/4" Type S drywall screws 12" o.c. Resilient channels applied at right angles to minimum 9 1/2" deep wood I-joists, with minimum 1 1/4" deep x 1 1/2" wide flanges and minimum 3/8" webs, 24" o.c. with 1 1/4" Type W drywall screws. Face layer 1/2" type X gypsum wallboard applied at right angles to channels with 1 5/8" Type S drywall screws 12" o.c. Face layer end joints located midway between channels and attached to base layer with 1 1/2" Type G screws 12" o.c. Edge joints offset 24" from base layer edge joints. Wood I-joists supporting 5/8" oriented strand board applied at right angles to I-joists with 8d common nails 12" o.c.</p>		<p>Approx. Ceiling Weight: 5 psf Fire Test: NRCC A-4440.1 (Revised), 6-24-97 Sound Test: NRCC B-3150.1, 6-30-00 IIC & Test: 40 (68 C & P) NRCC B-3150.1, 6-30-00; NRCC B-3150.2, 6-30-00</p>	

FLOOR-CEILING SYSTEMS, WOOD-FRAMED			
GA FILE NO. FC 5120	GENERIC	1 HOUR FIRE	50 to 54 STC SOUND
WOOD JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS, GLASS FIBER INSULATION			
<p>One layer 1/2" type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 24" o.c. with 1" Type S drywall screws 8" o.c. at ends and 12" o.c. at intermediate furring channels. Gypsum board end joints located midway between continuous channels and attached to additional pieces of channel 64" long with screws 8" o.c. Resilient furring channels applied at right angles to 2 x 10 wood joists 16" o.c. with 6d coated nails, 1 7/8" long, 0.085" shank, 1/4" heads, two per joist. Wood joists supporting 5/8" interior plywood with exterior glue subfloor and 3/8" particle board, 1.5 psf. 3 1/2" glass fiber insulation batts, 0.7 pcf, friction fit in joist cavities supported alternately every 12" by wire rods and resilient furring channels.</p> <p>Sound tested with carpet and pad and with insulation stapled to joists.</p>		<p>Approx. Ceiling Weight: 2 psf Fire Test: FM FC-181, 8-31-72 Sound Test: G&H OC-3MT, 10-13-71 IIC & Test: (73 C & P) G&H OC-3MT, 10-13-71</p>	