

## Examples of Construction Requirements

### GENERAL CONSTRUCTION REQUIREMENTS TO ACHIEVE 25 dB NOISE LEVEL REDUCTION

Element	Location	Sound Transmission Class (STC)	Requirement
Exterior walls	All perimeter walls	39	2 x 4 stud wall required with 5/8-inch exterior sheathing and 5/8-inch gypsum board or plaster interior
Exterior walls	All perimeter walls		Insulation grade R-9 required
Exterior walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	30	Stucco, brick or siding homes – STC 30
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	28	1 ¾ inch prime solid core wood or insulated material
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	39	Rafter depth 6 inches or more
Attic and kneewall	Vented attic and pitched roof		Insulation grade R-19 required
Ceiling	All habitable rooms	28	½ inch thick gypsum board or plaster
Ceiling under roof	All habitable rooms		Skylights STC-28
Floor	Over crawl space		Max Vent area 2% of floor area
Ventilation	Entire House		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		Baffle vents to exterior
Ventilation	Attic		Code Minimum Number Gravity Vents

Source: Scott Air Force Base/Mid America St. Louis Airport Joint Land Use Study

Source: <http://www.shilohil.org/jlus4.pdf>

### GENERAL CONSTRUCTION REQUIREMENTS TO ACHIEVE 30 dB NOISE LEVEL REDUCTION

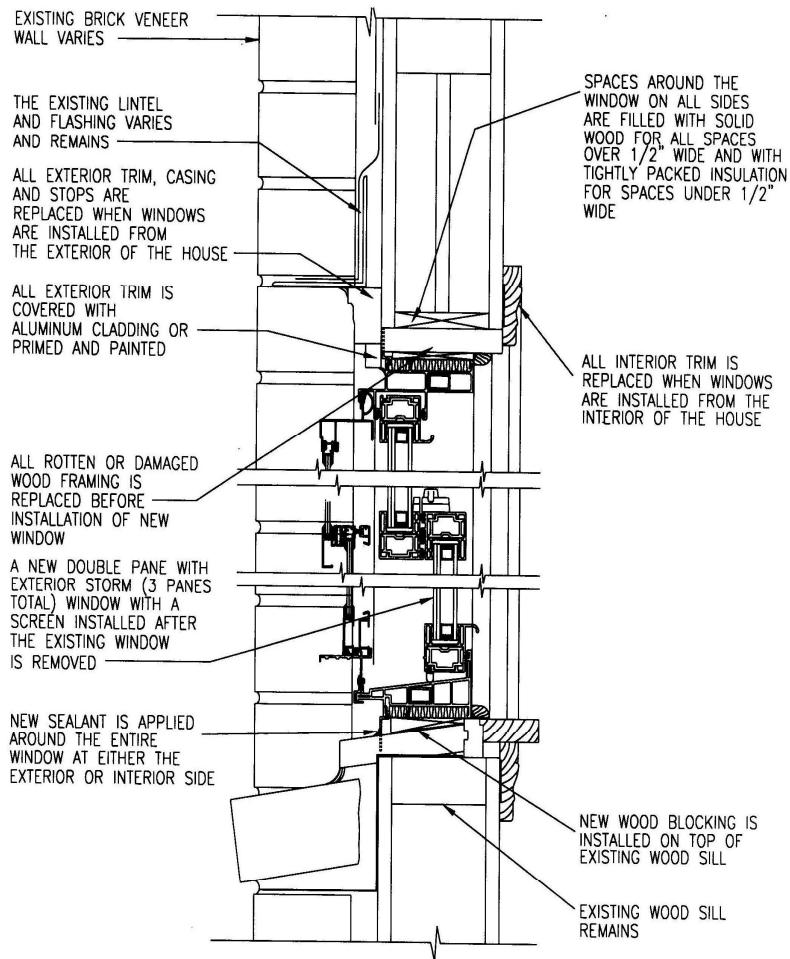
Element	Location	Sound Transmission Class (STC)	Requirement
Exterior Walls	All perimeter walls	44	2 x 4 stud wall required with 5/8-inch exterior sheathing and 5/8-inch gypsum board or plaster interior
Exterior Walls	All perimeter walls		Interior walls resiliently mounted
Exterior Walls	All perimeter walls		Insulation grade R-11 required
Exterior Walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	36/40	Stucco, brick or siding homes – STC 36; siding homes – STC 40
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	35	1 ¾ inch prime and storm door
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	44	Rafter depth 6 inches or more
Attic and kneewall	Vented attic and pitched roof		Insulation grade R-19 required
Ceiling	All habitable rooms	28	5/8 inch thick gypsum board or plaster
Ceiling under roof	All habitable rooms		No Skylights
Floor	Lowest occupied rooms	49	Slab or enclosed basement/craw space
Floor	Over crawl space		Insulation grade R-9 required
Ventilation	Entire House		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		Baffle vents to exterior
Ventilation	Attic		No gravity vents
Miscellaneous	All habitable rooms		No vented fireplaces

### GENERAL CONSTRUCTION REQUIREMENTS TO ACHIEVE 35 dB NOISE LEVEL REDUCTION

Element	Location	Sound Transmission Class (STC)	Requirement
Exterior Walls	All perimeter walls	49	2 x 4 stud wall required with 5/8-inch exterior sheathing and sealed top and bottom and 1 inch gypsum board or plaster interior
Exterior Walls	All perimeter walls		Interior wall not rigidly connected to exterior wall studs
Exterior Walls	All perimeter walls		Insulation grade R-11 required
Exterior Walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	40/42	Brick homes – STC 40; siding homes – STC 42
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	38	1 ¾ inch prime and storm door
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	49	Rafter depth 6 inches or more
Attic and kneewall	Vented attic		Insulation grade R-30 required
Ceiling	Habitable rooms under cathedral ceiling, flat or pitched roof without attic		Resilient ceiling attachment
Ceiling	All habitable rooms		1 inch thick gypsumboard or plaster
Ceiling under roof	All habitable rooms		No Skylights
Floor	Lowest occupied rooms	49	Slab or enclosed basement/crawl space
Floor	Over crawl space		Insulation grade R-11 required
Ventilation	Entire House		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		Baffle vents to exterior
Ventilation	Attic		No gravity vents
Miscellaneous	All habitable rooms		No vented fireplaces

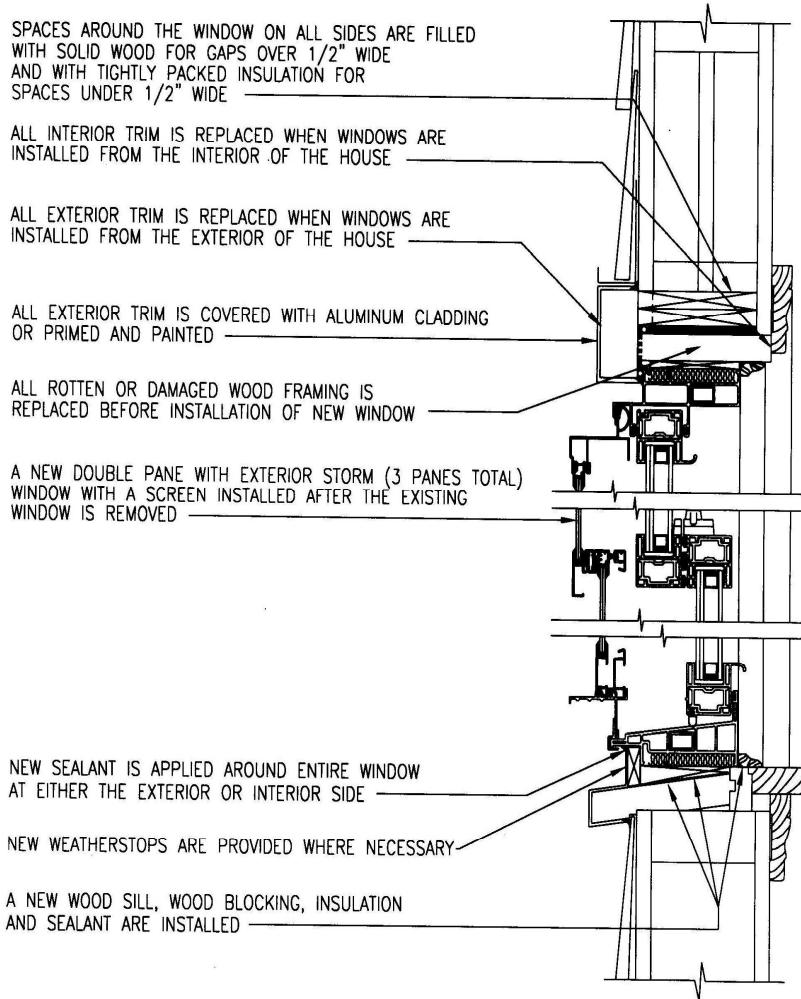
## CHICAGO O'HARE SOUND INSULATION MANUAL – MATERIAL AND CONSTRUCTION RECOMMENDATIONS

### A1: WINDOW DETAIL



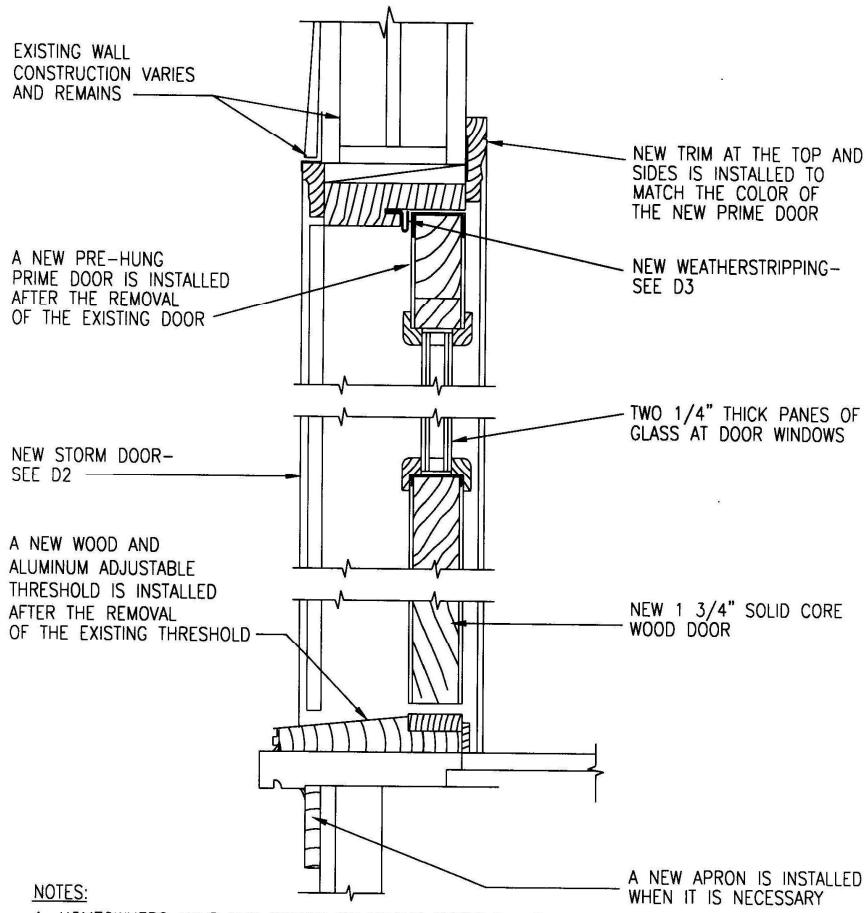
**WINDOW DETAIL**  
 NEW ACOUSTICAL WINDOW IN BRICK HOME

## A2: WINDOW DETAIL



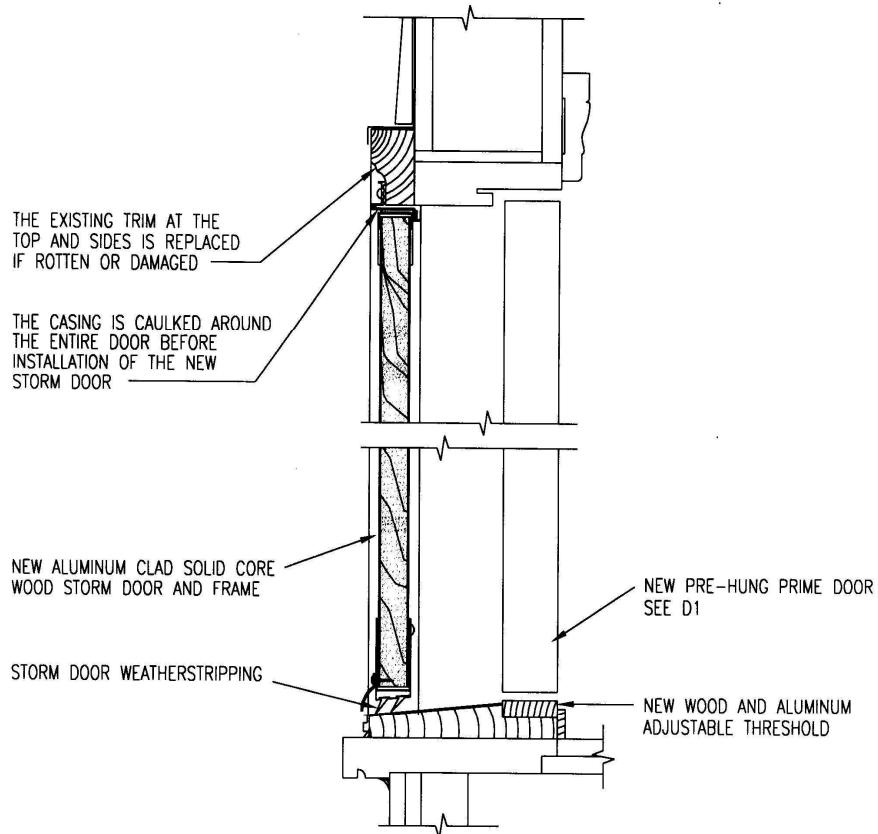
W1 <--> WINDOW DETAIL  
 NEW ACOUSTICAL WINDOW IN FRAME HOME

**A3: DOOR DETAIL**



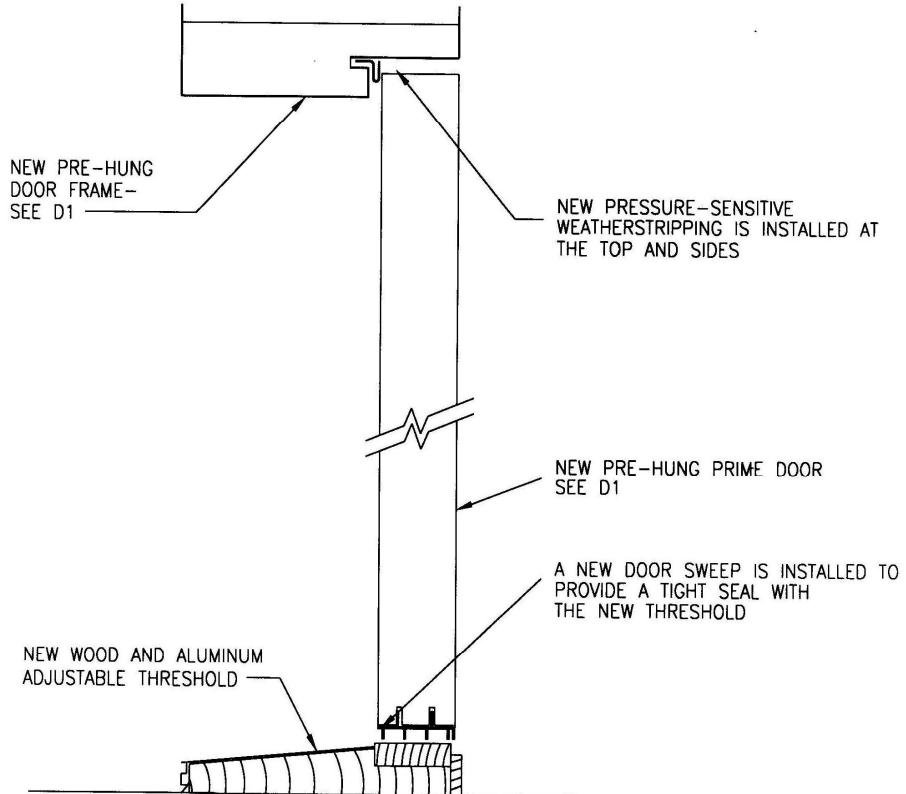
D1      DOOR DETAIL  
 NEW PRE-HUNG PRIME DOOR

**A4: DOOR DETAIL**



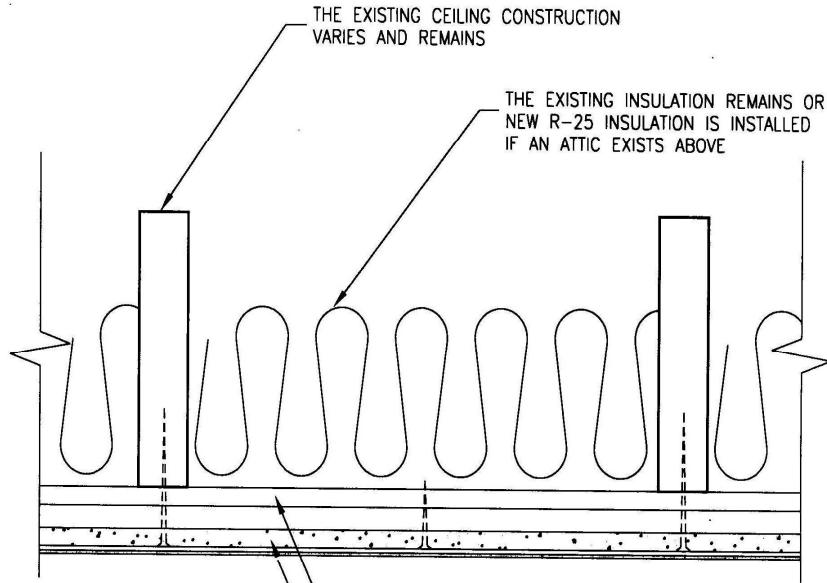
D2 DOOR DETAIL  
 NEW STORM DOOR

**A5: DOOR DETAIL**



D3 DOOR DETAIL  
NEW WEATHERSTRIPPING IN NEW PRE-HUNG DOORS

**A6: SOUND INSULATION**



THE EXISTING CEILING CONSTRUCTION VARIES AND REMAINS

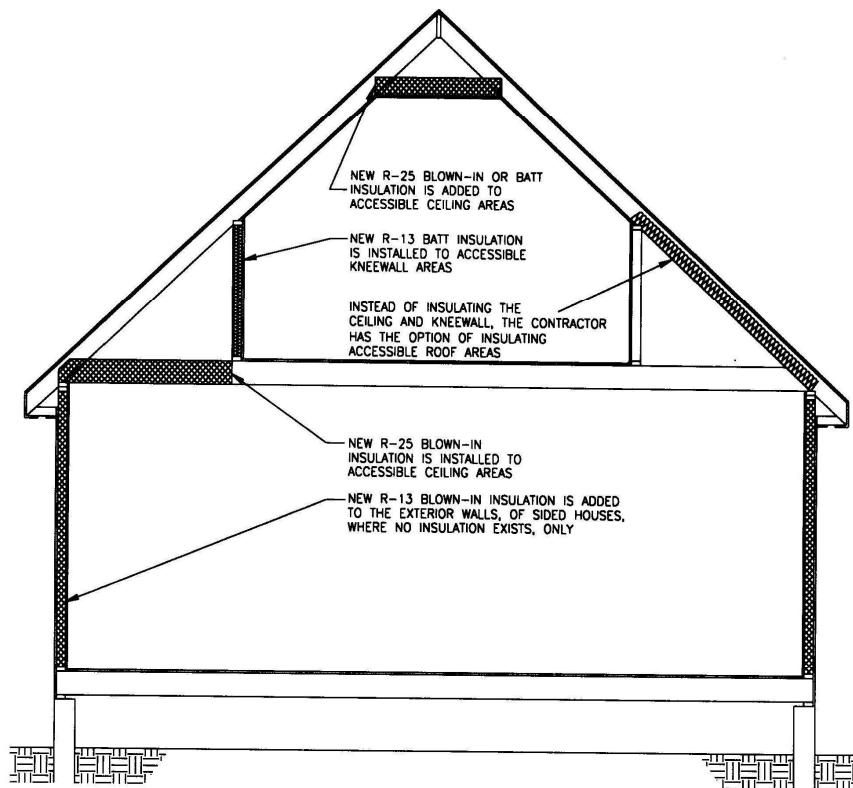
THE EXISTING INSULATION REMAINS OR NEW R-25 INSULATION IS INSTALLED IF AN ATTIC EXISTS ABOVE

THE EXISTING CEILING CONSTRUCTION VARIES AND REMAINS

NEW 5/8" THICK DRYWALL IS SCREWED DIRECTLY TO THE EXISTING CEILING STRUCTURE

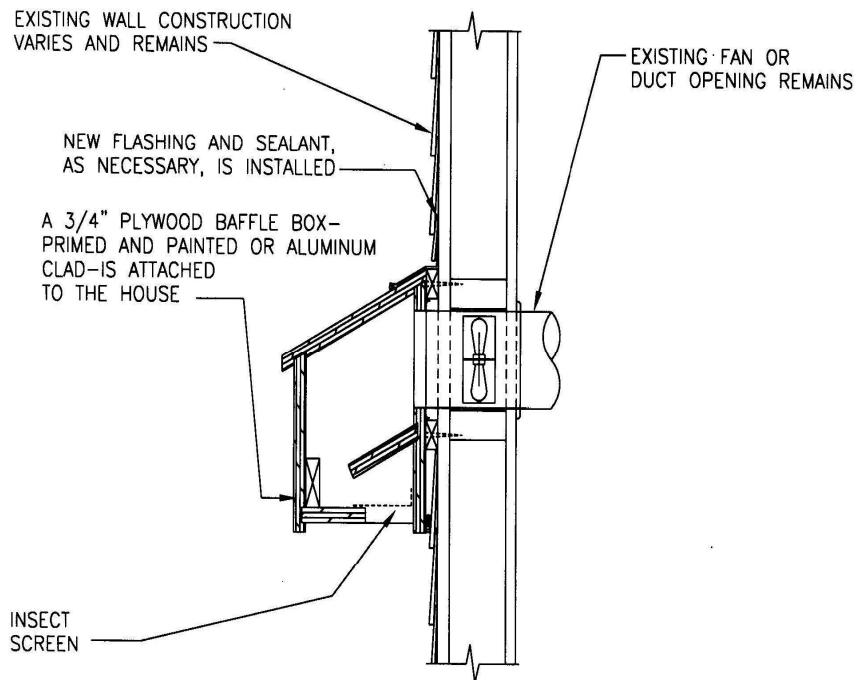
C1 CEILING DETAIL  
NEW DRYWALL OVER EXISTING CEILING

**A7: SOUND INSULATION – NEW HOME**



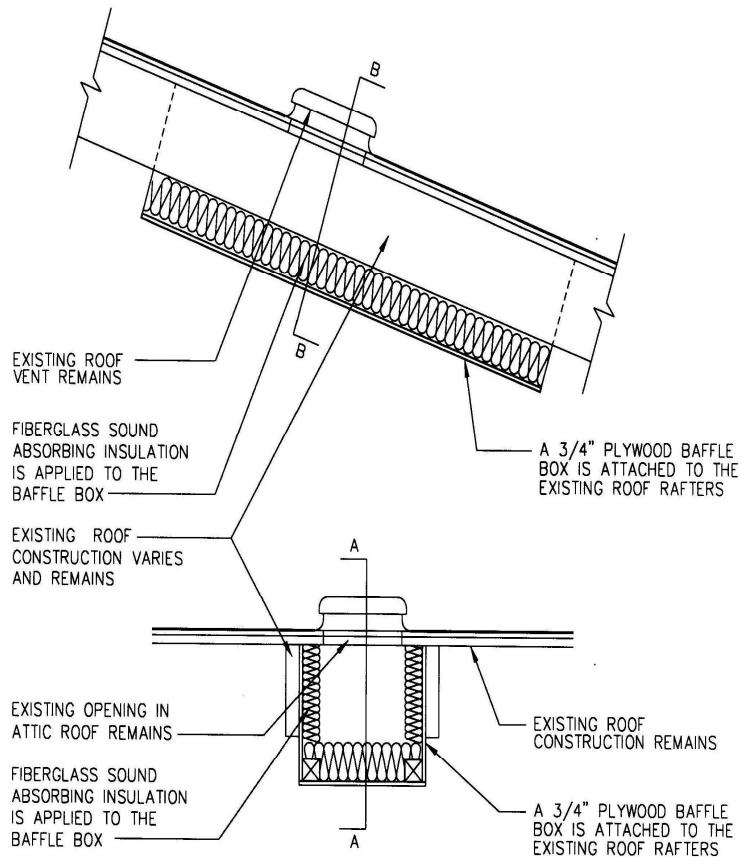
II **INSULATION FOR TYPICAL HOME**  
DIAGRAMMATIC ONLY (NO SCALE)

**A8: SOUND INSULATION – VENT DETAIL**



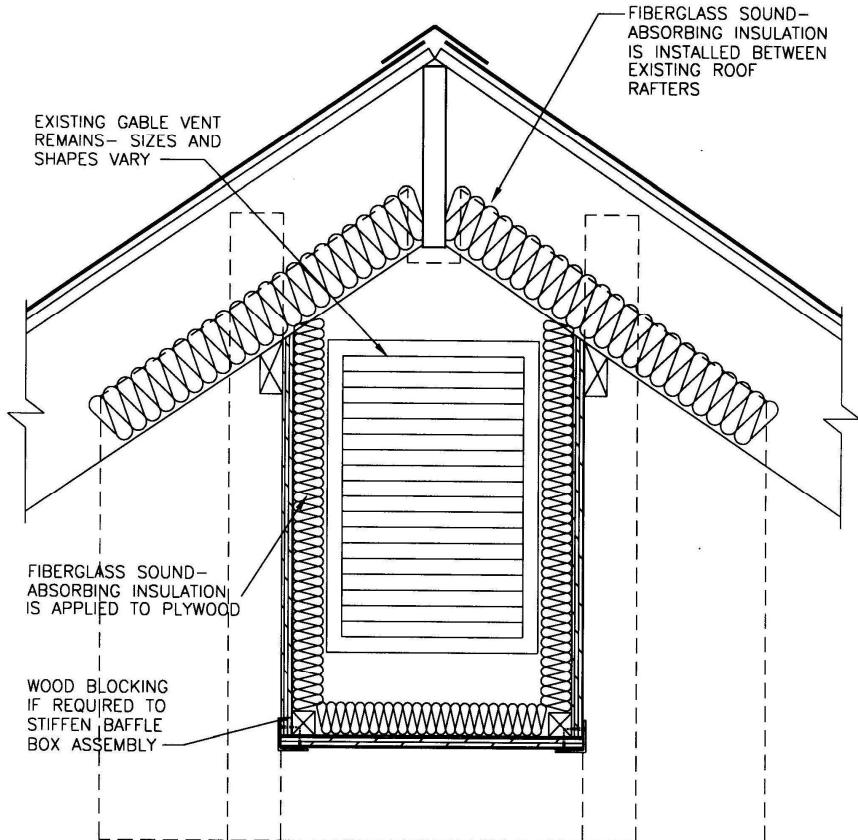
V1 VENT DETAIL  
 NEW WALL VENTILATION BAFFLE

**A9: SOUND INSULATION – VENT DETAIL FOR ROOF**



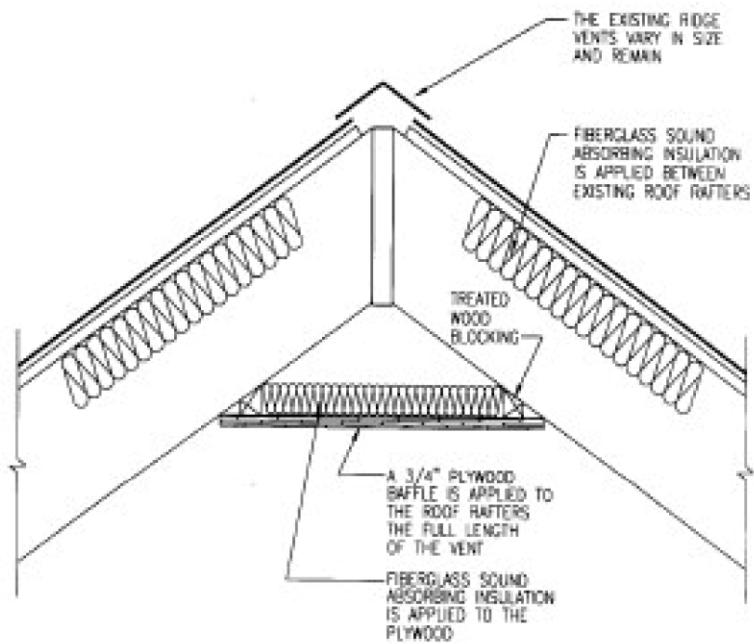
VENT DETAIL  
 NEW ROOF VENT BAFFLE

**A10: VENT GABLE**



 VENT DETAIL  
 NEW GABLE VENT BAFFLE

A11: VENT GABLE



VENT DETAIL  
NEW RIDGE VENT BAFFLE