

RSI CALCULATIONS

ROOF (CELLULOSE INSULATION) R50 BLOWN
EFFECTIVE RSI FOR A ROOF ASSEMBLY ZONE 7A
FOR NON-VAULTED ROOF(TRUSSES 24" o.c. 2 x 4 BOTTOM CHORD, HIGH HEEL)

CONTINUOUS MATERIALS IN ASSEMBLY		RSI/mm	RSI
EXTERIOR AIR FILM			0.03
BLOWN INSULATION	15" LESS BOTTOM CHORD (15"-3.5"=11.5" (292.1mm)	0.025	7.302515
VAPOUR BARRIER			0
INTERIOR GYPSUM	5/8" DRYWALL (1mm)	0.0061	0.09699
INSIDE AIR FILM			0.11
TOTAL RSI CONTINUOUS		=	7.539505
FRAMING PERCENTAGES (TABLE A-9.36.2.4.(1)A		7%	93%
THERMAL RESISTANCE WOOD TRUSS (BOTT. CHORD) (RSI		0.0085	0.7565
THERMAL RESISTANCE CAVITY (RSI 3.5 BLOWN CELLULOSE)		0.025	2.225

$$RSI_{\text{PARALLEL}} = 100 / ((11 / 0.7565) + (89 / 2.225)) = 1.883495$$
$$RSI_{\text{eff}} = RSI_{\text{continuous}} + RSI_{\text{PARALLEL}} = 7.539505 + 1.833495 = 9.37$$
$$EFFECTIVE R-VALUE = RSI_{\text{eff}} \times 5.678 = 53.2 \text{ COMPLIANT}$$

*HEMPCRETE EXTERIOR WALL
(2"x 6" EXTERIOR WALL & 2"x 3" INNER WALL)
EFFECTIVE RSI FOR A EXTERIOR WALL ASSEMBLY ZONE 7A

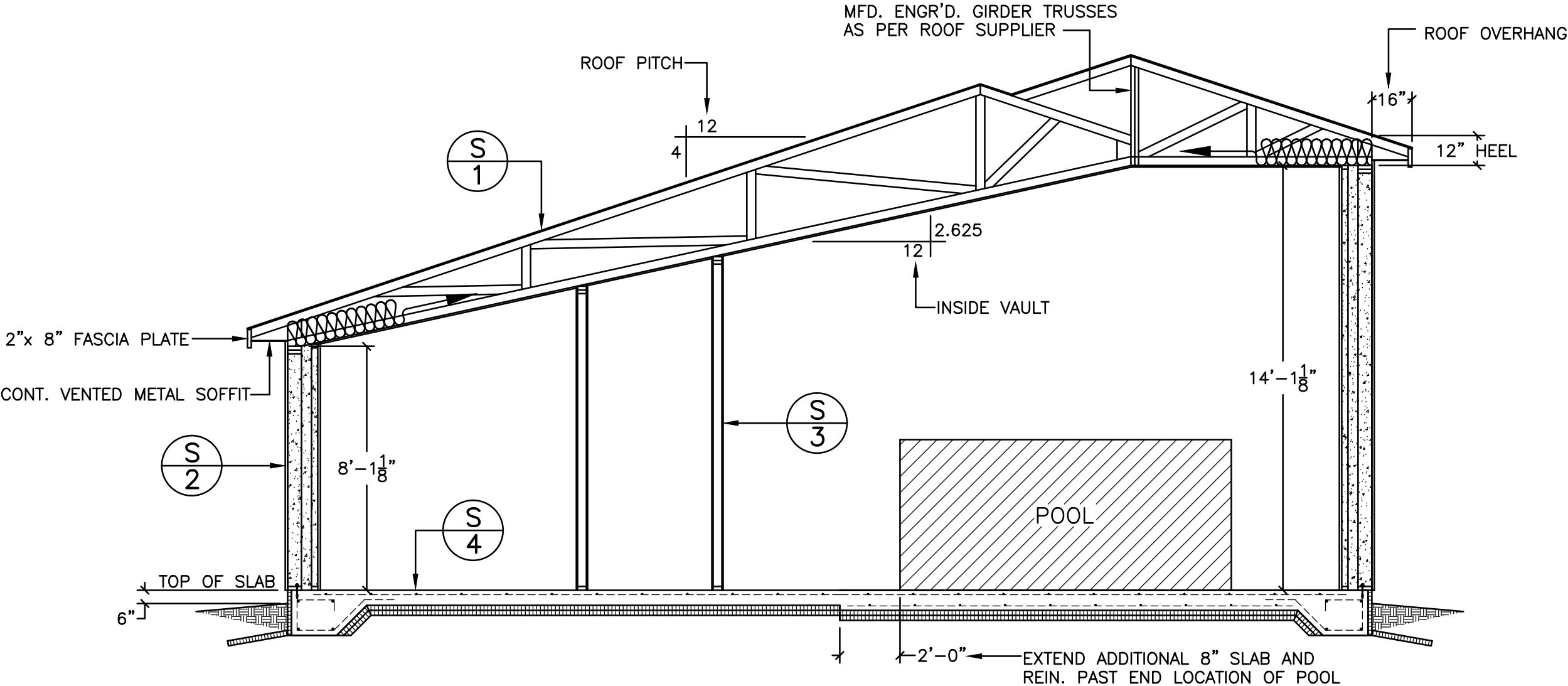
CONTINUOUS MATERIALS IN ASSEMBLY		RSI/mm	RSI
EXTERIOR AIR FILM			0.03
EXTERIOR STUCCO	1"(25.4mm)	0.0014	0.3556
HEMPCRETE	4" (101.6mm)	.013867586	1.408946738
INTERIOR PLASTER	1"(25.4mm)	0.0014	0.3556
INSIDE AIR FILM			0.12
TOTAL RSI CONTINUOUS		=	2.270146738
FRAMING PERCENTAGES (TABLE A-9.36.2.4.(1)A		23%	77%
THERMAL RESISTANCE 2 x 6 (140mm) WOOD STUD (RSI		0.0085	1.19
THERMAL RESISTANCE CAVITY 5.5"(139.7mm) x .01367586 = 1.910517642			
(POURED INTO 2 x 6 STUD WALL)			
RSI = 100 / ((23 / 1.19) + (77 / 1.910517642)) = 1.676981659			
FRAMING PERCENTAGES (TABLE A-9.36.2.4.(1)A		13%	87%
THERMAL RESISTANCE 2 x 3 (63.5mm) WOOD STUD (RSI		0.0085	0.53975
THERMAL RESISTANCE CAVITY 2.5(63.5mm) .013867586 0.880591711			

$$RSI_{\text{PARALLEL}} = 100 / ((13 / 0.53975) + (87 / .880591711)) = 0.813785991$$
$$RSI_{\text{eff}} = RSI_{\text{continuous}} + RSI_{\text{PARALLEL}} = 2.2701467328 + .813785991 + 1.676981659 = 4.760914382$$
$$EFFECTIVE R-VALUE = RSI_{\text{eff}} \times 5.678 = 27.0 \text{ COMPLIANT}$$

*HEATED BASEMENT FLOOR (COMFORTBOARD BY ROCKWOOL)
EFFECTIVE RSI FOR A HEATED GARAGE FLOOR

CONTINUOUS MATERIALS IN ASSEMBLY		RSI/mm	RSI
6 (152.4mm)" CONCRETE		0004/MM	0.06096
POLY VAPOUR BARRIER		0	0
4"(101.6mm) COMFORTBOARD		.027735173	2.817893577
TOTAL RSI CONTINUOUS		=	2.8768853577

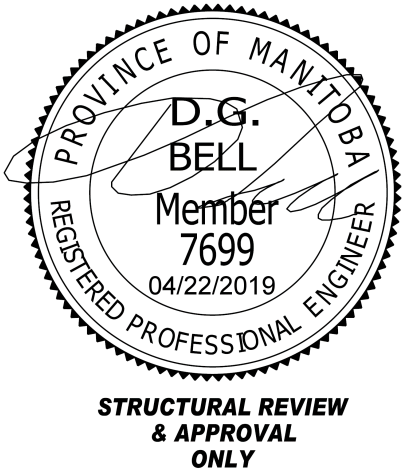
$$EFFECTIVE R-VALUE = RSI_{\text{eff}} \times 5.678 = 16.3 \text{ COMPLIANT}$$




CROSS SECTION "A-A"

-CONSTRUCTION MATERIALS-

- S1: ROOF CONSTRUCTION
-PREFINISHED METAL ROOFING
-1/2" T&G PLYWOOD (AND MEMBRANE)
-MFD. ENGR'D TRUSSES @24"o/c
-R50 CELLULOSE NSULATION
-6 MIL POLY V.B. (CGSB)
-1/2" WOOD PLANK
- S2: EXTERIOR WALLS
-1" LIME STUCCO (3 COATS)
-2"x 6" EXTERIOR STUDS @16"o/c
-4" VOID SPACE
-2"x 3" @24"o/c INTERIOR WALL
-1" INTERIOR CLAY PLASTER FINISH
- S3: INTERIOR PARTITIONS
-2" X 4" STUDS @16"o/c
(2" X 6" AS PER FLOOR PLAN)
-1/2" DRYWALL (BOTH SIDES)
- S4: FLOOR CONSTRUCTION
-FINISHED FLOOR
-6" REIN. CONCRETE SLAB (8" UNDER POOL)
-6 MIL POLY V.B. (CGSB)
-4" RIGID INSULATION (COMFORTBOARD 80 BY ROCKWOOL)
-6" MIN. COMPACTED GRAVEL



NOTE:
THE USER OF THESE DRAWINGS IS TO VERIFY DATA CONTAINED HEREIN AND IS HELD RESPONSIBLE TO REPORT ANY OMISSIONS OR ANY DISCREPANCIES FOR AMENDMENT. A&H DESIGNS' LIABILITY IS LIMITED TO MAKING THESE CHANGES. FURTHER, THESE DRAWINGS ARE THE PROPERTY OF THE COMPANY NOTED BELOW AND CANNOT BE REPRODUCED WITHOUT EXPRESSED PERMISSION OF THE SAME.

 A & H DESIGN SINCE 1985		TURNING DREAMS INTO REAL HOMES www.ahdesign.mb.ca homes@ahdesign.mb.ca In Canada 1.800.311.4844 204.667.9108 2 Amelia Crescent, Winnipeg Mb. R2K 3Z3	
PROJECT TOZELAND RESIDENCE			
DESCRIPTION CROSS-SECTION & MATERIALS			
DATE APR. '19	DWN. D.ASH	SCALE 1/4" = 1'-0" (UNLESS NOTED)	REV.
PLAN NO. 18-004	SHEET 5		