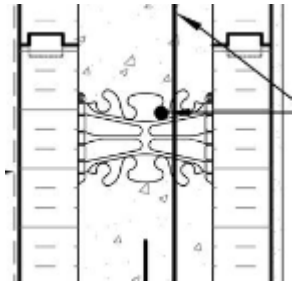
FOUNDATION WALL INSULATED CONCRETE FORMS (ICF) = 4.03 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)



- Exterior Damp Proofing
- R22 (Min R 21.41) Insulated Concrete Forms
- ½" (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
R22 Insulated Concrete Forms			3.83
½" Drywall			0.08
Interior Air Film			0.12
Sub-total:	0	0	**4.03**
Framing/Cavity percentage *(1):	%	%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(0 \div 0) + (0 \div 0)} = 0\ RSI_{\text{parallel effective}}$$

$RSI_{\text{parallel effective}}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{\text{effective}}$

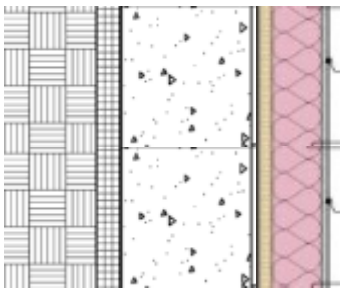
(0) + (4.03) = **4.03 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL EXTERIOR 1” XPS 2x6 @ 24” oc R20 BATT = 4.06

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail:



- 1” Extruded styrofoam (XPS)
- Exterior Damp Proofing
- 8” Concrete Foundation Wall
- ½” Air space
- 2x6 SPF #2 Studs @ 24” on centre
- R20 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
1” Extruded polystyrene Type 2, 3, 4			0.88
Exterior Damp Proofing			0.0
8” Concrete Foundation Wall			0.08
½” Air space			0.09
2x6 Studs @ 24” o/c	1.19	-	-
R20 Batt Insulation	-	3.52	-
6 Mil Poly			0.0
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.19	3.52	1.25
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.19) + (87 \div 3.52)} = 2.81\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

(2.81) + (1.25) = **4.06 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL 2-2x4 @ 24 oc R14 R12 BATT = 3.99 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)

- Exterior Damp Proofing
- 8" Concrete Foundation Wall
- 1/2" Airspace
- 2-2x4 SPF #2 Studs @ 24" on centre
- R14 Batt Insulation
- R12 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½" (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
8" Concrete Foundation Wall			0.08
½" Air Space			0.09
2-2x4 Studs @ 24" o/c	1.51	-	-
R 14 Batt Insulation	-	2.46	-
R 12 Batt Insulation		2.11	
6 Mil Poly			0.0
½" Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.51	4.57	0.37
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.51) + (87 \div 4.57)} = 3.62\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

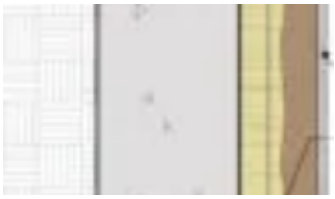
(3.62) + (0.37) = **3.99 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL 2x6 @ 24” oc SPRAY FOAM = 4.02 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)



- Exterior Damp Proofing
- 8” Concrete Foundation Wall
- ½” space to studs
- 2x6 SPF #2 Studs @ 24” on centre
- Spray foam medium density entire cavity
- ½” (12.7mm Drywall)

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
8” Concrete Foundation Wall			0.08
½” space to studs			0.0
2x6 Studs @ 24” o/c	1.19	-	-
Sprayed polyurethane foam medium density	-	5.49	-
½” Drywall			0.08
6 Mil Poly			0.0
Interior Air Film			0.12
Sub-total:	1.19	5.49	0.28
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div RSI_{Frame}) + (\text{Cavity \%} \div RSI_{Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.19) + (87 \div 5.49)} = 3.74\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

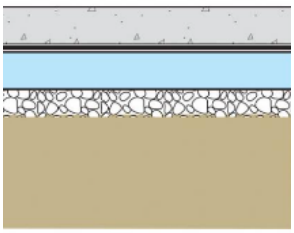
(3.74) + (0.28) = **4.02 RSI effective** THERFORE WORKS WITH OR WITHOUT AN HRV

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

UNHEATED SLAB BELOW FROST 3.5” XPS (Min R 15.75) = 3.28 RSI

TYPE OF ASSEMBLY: Unheated Floor <u>Below</u> Frost **REQUIRED EFFECTIVE RSI: ✓ 2.98**

Assembly detail:



- 4” Concrete Slab
- 6 Mil Poly Air/Soil Gas Barrier sealed to foundation
- 3.5” (Min R 15.75) Extruded Styrofoam (XPS) Insulation below entire slab
- 2” Extruded Styrofoam Insulation (Vertically at edge of slab)
- 4” granular layer
- Compacted Fill or Undisturbed Soil

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Interior Air Film			0.16
4” Unheated Concrete Slab			0.04
3.5” Extruded Polystyrene (XPS) Types 2,3, and 4			3.08
6 Mil Poly Air Barrier			0.0
4” granular layer			-
Compacted fill			-
Sub-total:	-	-	**3.28**
Framing/Cavity percentage *(1):	-	-	

$$\text{RSI}_{\text{parallel}} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = \text{RSI}_{\text{parallel effective}}$$

$$\text{RSI}_{\text{parallel}} = \frac{100}{(\quad \div \quad) + (\quad \div \quad)} = \text{RSI}_{\text{parallel effective}}$$

RSI parallel effective + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY RSI effective

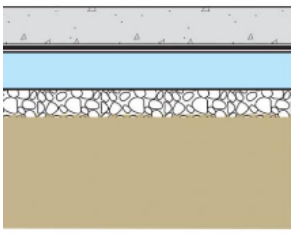
(0.00) + (3.28) = **3.28 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

HEATED SLAB OR UNHEATED SLAB ABOVE FROST 4” XPS (Min R 18.51) = 3.72 RSI

TYPE OF ASSEMBLY: Heated or Unheated Floor Above Frost **REQUIRED EFFECTIVE RSI: ✓ 3.46**

Assembly detail:



- 4” Concrete Slab
- 6 Mil Poly Air/Soil Gas Barrier sealed to foundation
- 4” (Min R 18.51) Extruded Styrofoam (XPS) Insulation below entire slab
- 2” Extruded Styrofoam Insulation (Vertically at edge of slab)
- 4” granular layer
- Compacted Fill or Undisturbed Soil

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Interior Air Film			0.16
4” Heated Concrete Slab			0.04
4” Extruded Polystyrene (XPS) Types 2,3, and 4			3.52
6 Mil Poly Air Barrier			0.0
4” granular layer			-
Compacted fill			-
Sub-total:	-	-	**3.52**
Framing/Cavity percentage *(1):	-	-	

$$\text{RSI}_{\text{parallel}} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = \text{RSI}_{\text{parallel effective}}$$

$$\text{RSI}_{\text{parallel}} = \frac{100}{(\quad \div \quad) + (\quad \div \quad)} = \text{RSI}_{\text{parallel effective}}$$

RSI parallel effective + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY RSI effective

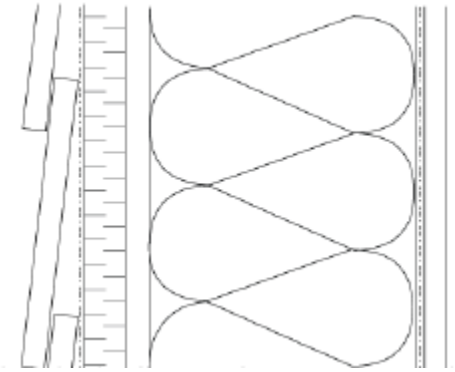
(0.00) + (3.28) = **3.72 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

EXTERIOR WALL VINYL SIDING 1” Semi-rigid 2x6 @ 16” oc R22 BATT = 3.69 RSI

TYPE OF ASSEMBLY: Above Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.69**

Assembly detail:



- Vinyl Siding
- 1” Semi-Rigid Rock Wood
- Tyvek Sheathing Paper
- 3/8” OSB Sheathing
- 2x6 SPF #2 Studs @ 12” on centre
- R22 Batt Insulation
- 6 Mil Poly
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
Vinyl Siding			0.11
1” Semi-rigid Rock Wool			0.704
3/8” OSB			0.093
2x6 Studs @ 16” o/c		-	-
R22 Batt Insulation	-	3.87	-
6 Mil Poly			0.0
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.19	3.87	1.137
Framing/Cavity percentage *(1):	23%	77%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div RSI_{Frame}) + (\text{Cavity \%} \div RSI_{Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(23 \div 1.19) + (77 \div 3.87)} = 2.49\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

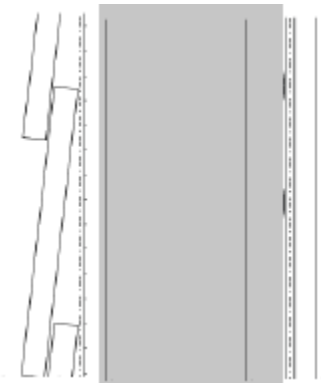
(2.55) + (1.14) = **3.69 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

EXTERIOR WALL VINYL SIDING 2x6 1” FURRING @ 16” oc SPRAY FOAM = 3.84 RSI

TYPE OF ASSEMBLY: Above Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.69**

Assembly detail:



- Vinyl Siding
- Tyvek Sheathing Paper
- 3/8” OSB Sheathing
- 2x6 SPF #2 Studs @ 16” on centre
- 1.5”x1” SPF #2 Furring @ 16” on centre
- Spray foam medium density entire cavity
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
Vinyl Siding			0.11
3/8” OSB			0.093
2x6 Studs @ 16” o/c	1.19	-	-
1.5”x1” Furring @ 16” o/c	0.21		
Sprayed polyurethane foam med den	-	5.94	-
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.4	5.94	0.433
Framing/Cavity percentage *(1):	23%	77%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(23 \div 1.40) + (77 \div 5.94)} = 3.41\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

(3.41) + (0.43) = **3.84 RSI effective**

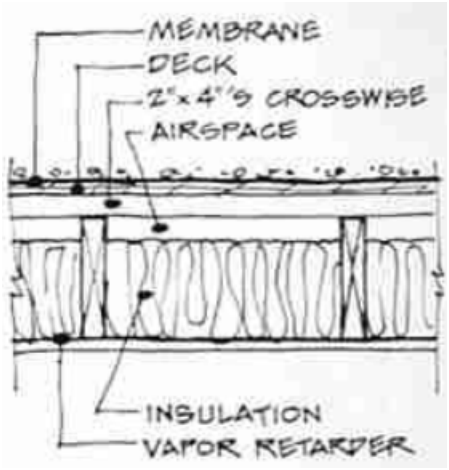
*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage

*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FLAT ROOF 2x12 @ 16” oc R22 R14 = 5.45 RSI

TYPE OF ASSEMBLY: Flat Roof **REQUIRED EFFECTIVE RSI:** ✓ **5.28**

Assembly detail:



- Roofing Membrane
- 7/16” OSB Roof Sheathing
- 2x4 cross purlins at 16” o/c
- Vented Air space
- 2x12 SPF #2 Studs @ 16” on centre
- R22 Batt Insulation
- R14 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½” Drywall Ceiling Board

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
2x12 Roof Joist @ 16” o/c	2.43	-	-
R22 Batt Insulation		3.87	
R14 Batt Insulation		2.46	
6 Mil Poly (*Air & Vapour Barrier*)			0.0
½” Drywall			0.08
Interior Air Film			0.11
Sub-total:	2.43	6.33	0.22
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(Frame\ \% \div RSI\ Frame) + (Cavity\ \% \div RSI\ Cavity)} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 2.43) + (87 \div 6.33)} = 5.24\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

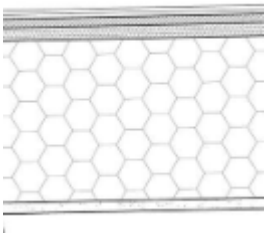
(5.24) + (0.22) = **5.45 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FLAT ROOF 2x10 @ 16” oc SPRAY FOAM = 5.31 RSI

TYPE OF ASSEMBLY: Flat Roof **REQUIRED EFFECTIVE RSI:** ✓ **5.28**

Assembly detail:



- Roofing Membrane
- 7/16” OSB Roof Sheathing
- 2x10 SPF #2 Studs @ 16” on centre
- Spray foam medium density full cavity
- ½” Drywall Ceiling Board

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
2x10 Roof Joist @ 16” o/c	2.0	-	-
Sprayed polyurethane foam med density		6.62	
6 Mil Poly (*Air & Vapour Barrier*)			0.0
½” Drywall			0.08
Interior Air Film			0.11
Sub-total:	2.0	6.62	0.22
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 2.0) + (87 \div 6.62)} = 5.09\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

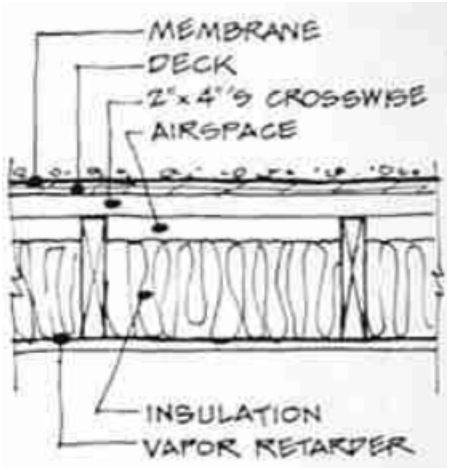
(5.09) + (0.22) = **5.31 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FLAT ROOF 2x12 @ 16” oc R22 R14 = 5.45 RSI

TYPE OF ASSEMBLY: Flat Roof **REQUIRED EFFECTIVE RSI:** ✓ **5.28**

Assembly detail:



- Roofing Membrane
- 7/16” OSB Roof Sheathing
- 2x4 cross purlins at 16” o/c
- Vented Air space
- 2x12 SPF #2 Studs @ 16” on centre
- R22 Batt Insulation
- R14 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½” Drywall Ceiling Board

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
2x12 Roof Joist @ 16” o/c	2.43	-	-
R22 Batt Insulation		3.87	
R14 Batt Insulation		2.46	
6 Mil Poly (*Air & Vapour Barrier*)			0.0
½” Drywall			0.08
Interior Air Film			0.11
Sub-total:	2.43	6.33	0.22
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(Frame\ \% \div RSI\ Frame) + (Cavity\ \% \div RSI\ Cavity)} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 2.43) + (87 \div 6.33)} = 5.24\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

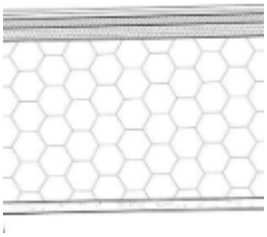
(5.24) + (0.22) = **5.45 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FLAT ROOF 2x10 @ 16” oc SPRAY FOAM = 5.31 RSI

TYPE OF ASSEMBLY: Flat Roof **REQUIRED EFFECTIVE RSI:** ✓ **5.28**

Assembly detail:



- Roofing Membrane
- 7/16” OSB Roof Sheathing
- 2x10 SPF #2 Studs @ 16” on centre
- Spray foam medium density full cavity
- ½” Drywall Ceiling Board

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
2x10 Roof Joist @ 16” o/c	2.0	-	-
Sprayed polyurethane foam med density		6.62	
6 Mil Poly (*Air & Vapour Barrier*)			0.0
½” Drywall			0.08
Interior Air Film			0.11
Sub-total:	2.0	6.62	0.22
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 2.0) + (87 \div 6.62)} = 5.09\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

(5.09) + (0.22) = **5.31 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL INTERIOR 1" XPS 2x6 @ 24" oc R20 BATT = 3.97 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓3.97

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)

- Exterior Damp Proofing
- 8" Concrete Foundation Wall
- 1" Extruded styrofoam (XPS)
- 2x6 SPF #2 Studs @ 24" on centre
- R20 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½" (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
8" Concrete Foundation Wall			0.08
1" Extruded polystyrene Type 2, 3, 4			0.88
2x6 Studs @ 24" o/c	1.19	-	-
R20 Batt Insulation	-	3.52	-
6 Mil Poly			0.0
½" Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.19	3.52	1.16
Framing/Cavity percentage *(1):	13%	87%	

$$\text{RSI}_{\text{parallel}} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = \text{RSI}_{\text{parallel effective}}$$

$$\text{RSI}_{\text{parallel}} = \frac{100}{(13 \div 1.19) + (87 \div 3.52)} = 3.18 \ \text{RSI}_{\text{parallel effective}}$$

$\text{RSI}_{\text{parallel effective}}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $\text{RSI}_{\text{effective}}$

$(2.81) + (1.16) =$ **3.97 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL 2-2x4 @ 24 oc R14 R12 BATT = 3.99 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)

- Exterior Damp Proofing
- 8" Concrete Foundation Wall
- 1/2" Airspace
- 2-2x4 SPF #2 Studs @ 24" on centre
- R14 Batt Insulation
- R12 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½" (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
8" Concrete Foundation Wall			0.08
½" Air Space			0.09
2-2x4 Studs @ 24" o/c	1.51	-	-
R 14 Batt Insulation	-	2.46	-
R 12 Batt Insulation		2.11	
6 Mil Poly			0.0
½" Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.51	4.57	0.37
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.51) + (87 \div 4.57)} = 3.62 \ RSI_{\text{parallel effective}}$$

$RSI_{\text{parallel effective}}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{\text{effective}}$

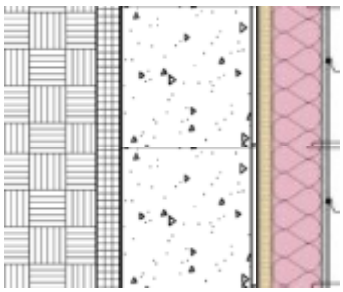
(3.62) + (0.37) = **3.99 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL EXTERIOR 1” XPS 2x6 @ 24” oc R20 BATT = 4.06

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail:



- 1” Extruded styrofoam (XPS)
- Exterior Damp Proofing
- 8” Concrete Foundation Wall
- ½” Air space
- 2x6 SPF #2 Studs @ 24” on centre
- R20 Batt Insulation
- 6 Mil Poly (*Air & Vapour Barrier*)
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
1” Extruded polystyrene Type 2, 3, 4			0.88
Exterior Damp Proofing			0.0
8” Concrete Foundation Wall			0.08
½” Air space			0.09
2x6 Studs @ 24” o/c	1.19	-	-
R20 Batt Insulation	-	3.52	-
6 Mil Poly			0.0
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.19	3.52	1.25
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.19) + (87 \div 3.52)} = 2.81 \; RSI_{\text{parallel effective}}$$

$RSI_{\text{parallel effective}}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{\text{effective}}$

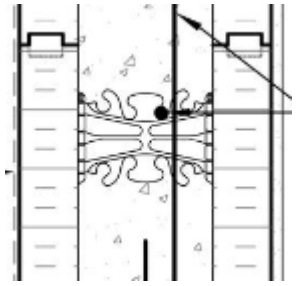
(2.81) + (1.25) = **4.06 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL INSULATED CONCRETE FORMS (ICF) = 4.03 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)



- Exterior Damp Proofing
- R22 (Min R 21.41) Insulated Concrete Forms
- ½" (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
R22 Insulated Concrete Forms			3.83
½" Drywall			0.08
Interior Air Film			0.12
Sub-total:	0	0	**4.03**
Framing/Cavity percentage *(1):	%	%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(0 \div 0) + (0 \div 0)} = 0\ RSI_{\text{parallel effective}}$$

$RSI_{\text{parallel effective}}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{\text{effective}}$

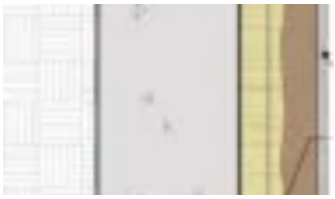
(0) + (4.03) = **4.03 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

FOUNDATION WALL 2x6 @ 24” oc SPRAY FOAM = 4.02 RSI

TYPE OF ASSEMBLY: Below Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.97**

Assembly detail: (indicate type and location of air barrier and vapour barrier in detail drawing)



- Exterior Damp Proofing
- 8” Concrete Foundation Wall
- ½” space to studs
- 2x6 SPF #2 Studs @ 24” on centre
- Spray foam medium density entire cavity
- ½” (12.7mm Drywall)

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Soil			0.0
Exterior Damp Proofing			0.0
8” Concrete Foundation Wall			0.08
½” space to studs			0.0
2x6 Studs @ 24” o/c	1.19	-	-
Sprayed polyurethane foam medium density	-	5.49	-
½” Drywall			0.08
6 Mil Poly			0.0
Interior Air Film			0.12
Sub-total:	1.19	5.49	0.28
Framing/Cavity percentage *(1):	13%	87%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div RSI_{Frame}) + (\text{Cavity \%} \div RSI_{Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(13 \div 1.19) + (87 \div 5.49)} = 3.74\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

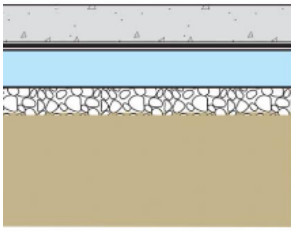
(3.74) + (0.28) = **4.02 RSI effective** THERFORE WORKS WITH OR WITHOUT AN HRV

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

HEATED SLAB OR UNHEATED SLAB ABOVE FROST 4” XPS (Min R 18.51) = 3.72 RSI

TYPE OF ASSEMBLY: Heated or Unheated Floor Above Frost **REQUIRED EFFECTIVE RSI: ✓ 3.46**

Assembly detail:



- 4” Concrete Slab
- 6 Mil Poly Air/Soil Gas Barrier sealed to foundation
- 4” (Min R 18.51) Extruded Styrofoam (XPS) Insulation below entire slab
- 2” Extruded Styrofoam Insulation (Vertically at edge of slab)
- 4” granular layer
- Compacted Fill or Undisturbed Soil

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Interior Air Film			0.16
4” Heated Concrete Slab			0.04
4” Extruded Polystyrene (XPS) Types 2,3, and 4			3.52
6 Mil Poly Air Barrier			0.0
4” granular layer			-
Compacted fill			-
Sub-total:	-	-	**3.52**
Framing/Cavity percentage *(1):	-	-	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(\quad \div \quad) + (\quad \div \quad)} = RSI_{\text{parallel effective}}$$

$$RSI_{\text{parallel effective}} + \text{Iso Planes total} = \text{TOTAL EFFECTIVE THERMAL ASSEMBLY } RSI_{\text{effective}}$$

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

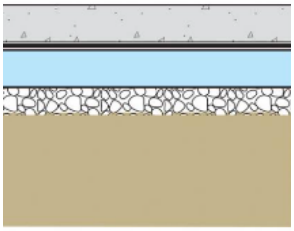
(0.00) + (3.28) = **3.72 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

UNHEATED SLAB BELOW FROST 3.5” XPS (Min R 15.75) = 3.28 RSI

TYPE OF ASSEMBLY: Unheated Floor Below Frost **REQUIRED EFFECTIVE RSI: ✓ 2.98**

Assembly detail:



- 4” Concrete Slab
- 6 Mil Poly Air/Soil Gas Barrier sealed to foundation
- 3.5” (Min R 15.75) Extruded Styrofoam (XPS) Insulation below entire slab
- 2” Extruded Styrofoam Insulation (Vertically at edge of slab)
- 4” granular layer
- Compacted Fill or Undisturbed Soil

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Interior Air Film			0.16
4” Unheated Concrete Slab			0.04
3.5” Extruded Polystyrene (XPS) Types 2,3, and 4			3.08
6 Mil Poly Air Barrier			0.0
4” granular layer			-
Compacted fill			-
Sub-total:	-	-	**3.28**
Framing/Cavity percentage *(1):	-	-	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{\text{parallel effective}}$$

$$RSI_{parallel} = \frac{100}{(\quad \div \quad) + (\quad \div \quad)} = RSI_{\text{parallel effective}}$$

$$RSI_{\text{parallel effective}} + \text{Iso Planes total} = \text{TOTAL EFFECTIVE THERMAL ASSEMBLY } RSI_{\text{effective}}$$

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

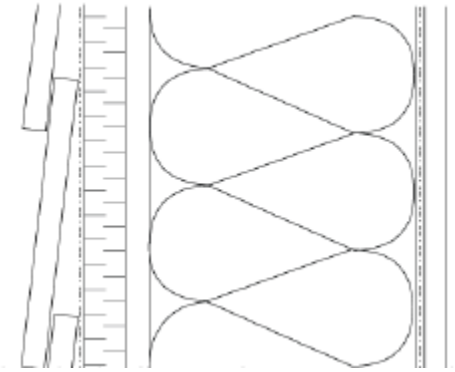
(0.00) + (3.28) = **3.28 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

EXTERIOR WALL VINYL SIDING 1” Semi-rigid 2x6 @ 16” oc R22 BATT = 3.69 RSI

TYPE OF ASSEMBLY: Above Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.69**

Assembly detail:



- Vinyl Siding
- 1” Semi-Rigid Rock Wool
- Tyvek Sheathing Paper
- 3/8” OSB Sheathing
- 2x6 SPF #2 Studs @ 12” on centre
- R22 Batt Insulation
- 6 Mil Poly
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
Vinyl Siding			0.11
1” Semi-rigid Rock Wool			0.704
3/8” OSB			0.093
2x6 Studs @ 16” o/c		-	-
R22 Batt Insulation	-	3.87	-
6 Mil Poly			0.0
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.19	3.87	1.137
Framing/Cavity percentage *(1):	23%	77%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div RSI_{Frame}) + (\text{Cavity \%} \div RSI_{Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(23 \div 1.19) + (77 \div 3.87)} = 2.49\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

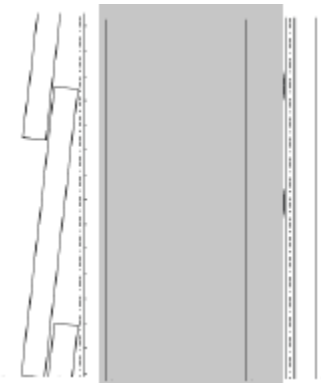
(2.55) + (1.14) = **3.69 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage
*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI

EXTERIOR WALL VINYL SIDING 2x6 1” FURRING @ 16” oc SPRAY FOAM = 3.84 RSI

TYPE OF ASSEMBLY: Above Grade Wall **REQUIRED EFFECTIVE RSI:** ✓ **3.69**

Assembly detail:



- Vinyl Siding
- Tyvek Sheathing Paper
- 3/8” OSB Sheathing
- 2x6 SPF #2 Studs @ 16” on centre
- 1.5”x1” SPF #2 Furring @ 16” on centre
- Spray foam medium density entire cavity
- ½” (12.7mm) Drywall

	Parallel Path Calc:		Iso Planes Values:
Material (include thickness/spacing):	Thermal Resistance at Framing (RSI) *(2):	Thermal Resistance at Cavity (RSI) *(2):	Thermal Resistance *(2):
Exterior Air Film			0.03
Vinyl Siding			0.11
3/8” OSB			0.093
2x6 Studs @ 16” o/c	1.19	-	-
1.5”x1” Furring @ 16” o/c	0.21		
Sprayed polyurethane foam med den	-	5.94	-
½” Drywall			0.08
Interior Air Film			0.12
Sub-total:	1.4	5.94	0.433
Framing/Cavity percentage *(1):	23%	77%	

$$RSI_{parallel} = \frac{100}{(\text{Frame \%} \div \text{RSI Frame}) + (\text{Cavity \%} \div \text{RSI Cavity})} = RSI_{parallel\ effective}$$

$$RSI_{parallel} = \frac{100}{(23 \div 1.40) + (77 \div 5.94)} = 3.41\ RSI_{parallel\ effective}$$

$RSI_{parallel\ effective}$ + Iso Planes total = TOTAL EFFECTIVE THERMAL ASSEMBLY $RSI_{effective}$

(3.41) + (0.43) = **3.84 RSI effective**

*(1) Refer to Table A-9.36.2.4.(1)A for framing/cavity percentage

*(2) Refer to Table A-9.36.2.4.(1)D for thermal resistance of materials in RSI