# Sample Form 3R's with
# Current (2001) and Proposed (2005) Assumptions

April 23, 2002

| Description | Name | Effective R | U-factor | Framing | Cavity R | Sheathing R |
|---|---|---|---|---|---|---|
| **Without Sheathing** | | | | | | |
| 2001 practice | W13.2001 | 13 | **0.088** | Wood | 13 | 0 |
| with new framing factors | W13.FF | 13 | **0.102** | Wood | 13 | 0 |
| blown | W13.BLOWN | 13 | **0.102** | Wood | 13 | 0 |
| Nominal install | W13.NOMINAL | 8.97 | **0.121** | Wood | 13 | 0 |
| Quality install | W13.QUALITY | 12.22 | **0.105** | Wood | 13 | 0 |
| **With Sheathing** | | | | | | |
| 2001 practice | W13S2001 | 17 | **0.063** | Wood | 13 | 4 |
| with new framing factors | W13SFF | 17 | **0.069** | Wood | 13 | 4 |
| blown | W13SBLOWN | 17 | **0.069** | Wood | 13 | 4 |
| Nominal install | W13SNOMINAL | 12.97 | **0.081** | Wood | 13 | 4 |
| Quality install | W13SQUALITY | 16.22 | **0.071** | Wood | 13 | 4 |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13.2001

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 13 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.15

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.88 | 0.875 in stucco | 0.17 | 0.17 |
| 2. | BLDG.PAPER | Building paper (felt) | 0.06 | 0.06 |
| 3c. | BATT.R13 | R-13 batt insul (2001 no adjustment) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 14.53 | 5.00 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 14.53 x 0.85) + | (1 / 5.00 x 0.15) = | 0.088 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.088 = | 11.30 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13.FF

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 13 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.88 | 0.875 in stucco | 0.17 | 0.17 |
| 2. | BLDG.PAPER | Building paper (felt) | 0.06 | 0.06 |
| 3c. | BATT.R13 | R-13 batt insul (2001 no adjustment) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 14.53 | 5.00 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 14.53 x 0.75) + | (1 / 5.00 x 0.25) = | 0.102 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.102 = | 9.84 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13.BLOWN

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 13 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.88 | 0.875 in stucco | 0.17 | 0.17 |
| 2. | BLDG.PAPER | Building paper (felt) | 0.06 | 0.06 |
| 3c. | BLOWN.R13 | R-13 spray cellulose (quality 1.00) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 14.53 | 5.00 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 14.53 x 0.75) + | (1 / 5.00 x 0.25) = | 0.102 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.102 = | 9.84 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13.NOMINAL

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 8.97 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.88 | 0.875 in stucco | 0.17 | 0.17 |
| 2. | BLDG.PAPER | Building paper (felt) | 0.06 | 0.06 |
| 3c. | BATT.R13.N | R-13 batt insul (nominal install 0.69) | 8.97 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 10.51 | 5.00 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 10.51 x 0.75) + | (1 / 5.00 x 0.25) = | 0.121 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.121 = | 8.24 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13.QUALITY

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 12.22 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.88 | 0.875 in stucco | 0.17 | 0.17 |
| 2. | BLDG.PAPER | Building paper (felt) | 0.06 | 0.06 |
| 3c. | BATT.R13.Q | R-13 batt insul (quality install 0.94) | 12.22 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 13.76 | 5.00 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 13.76 x 0.75) + | (1 / 5.00 x 0.25) = | 0.105 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.105 = | 9.57 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13S2001

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 17 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.15

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.125 | 0.125 in stucco | 0.03 | 0.03 |
| 2. | STYRENE.1.00 | 1.00 in polystyrene | 4.00 | 4.00 |
| 3c. | BATT.R13 | R-13 batt insul (2001 no adjustment) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 18.33 | 8.79 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 18.33 x 0.85) + | (1 / 8.79 x 0.15) = | 0.063 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.063 = | 15.76 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13SFF

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 17 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.125 | 0.125 in stucco | 0.03 | 0.03 |
| 2. | STYRENE.1.00 | 1.00 in polystyrene | 4.00 | 4.00 |
| 3c. | BATT.R13 | R-13 batt insul (2001 no adjustment) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 18.33 | 8.79 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 18.33 x 0.75) + | (1 / 8.79 x 0.25) = | 0.069 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.069 = | 14.42 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13SBLOWN

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 17 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.125 | 0.125 in stucco | 0.03 | 0.03 |
| 2. | STYRENE.1.00 | 1.00 in polystyrene | 4.00 | 4.00 |
| 3c. | BLOWN.R13 | R-13 spray cellulose (quality 1.00) | 13.00 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 18.33 | 8.79 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 18.33 x 0.75) + | (1 / 8.79 x 0.25) = | 0.069 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.069 = | 14.42 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R
User#-MPDemo User- Run-*@RUNTITLE*

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13SNOMINAL

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 12.97 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.125 | 0.125 in stucco | 0.03 | 0.03 |
| 2. | STYRENE.1.00 | 1.00 in polystyrene | 4.00 | 4.00 |
| 3c. | BATT.R13.N | R-13 batt insul (nominal install 0.69) | 8.97 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 14.30 | 8.79 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 14.30 x 0.75) + | (1 / 8.79 x 0.25) = | 0.081 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.081 = | 12.36 hr-sf-F/Btu |

Project Title..... _____ Date..04/18/02 17:23:21

| MICROPAS6 v6.50 File-MP-FORM3 Program-FORM 3R |
|---|
| User#-MPDemo User- Run-*@RUNTITLE* |

*** Demonstration Version - not to be used for paid consulting work ***

Parallel Path Method

Reference Name . W13SQUALITY

Description .... Wall R-13 2x4 16oc

Type ..... Wall

R-Value ..... 16.22 Hr-sf-F/Btu

Framing
- Material ..... FIR.2X4
- Type ..... Wood
- Description .. 2x4 fir
- Spacing ..... 16 inches on center
- Framing Frac.. 0.25

Sketch of Construction Assembly

LIST OF CONSTRUCTION COMPONENTS

| | Material Name | Description | Cavity R-Value | Frame R-Value |
|---|---|---|---|---|
| O. | FILM.EX | Exterior air film: winter value | 0.17 | 0.17 |
| 1. | STUCCO.0.125 | 0.125 in stucco | 0.03 | 0.03 |
| 2. | STYRENE.1.00 | 1.00 in polystyrene | 4.00 | 4.00 |
| 3c. | BATT.R13.Q | R-13 batt insul (quality install 0.94) | 12.22 | -- |
| 3f. | FIR.2X4 | 2x4 fir | -- | 3.46 |
| 4. | GYP.0.50 | 0.50 in gypsum or plaster board | 0.45 | 0.45 |
| I. | FILM.IN.WLL | Inside air film: heat sideways | 0.68 | 0.68 |
| | | Total Unadjusted R-Values | 17.55 | 8.79 |

FRAMING ADJUSTMENT CALCULATION

| | Cavity | Framing | Total |
|---|---|---|---|
| U-Factor: | (1 / 17.55 x 0.75) + | (1 / 8.79 x 0.25) = | 0.071 Btu/hr-sf-F |
| Total R-Value: | | 1 / 0.071 = | 14.05 hr-sf-F/Btu |