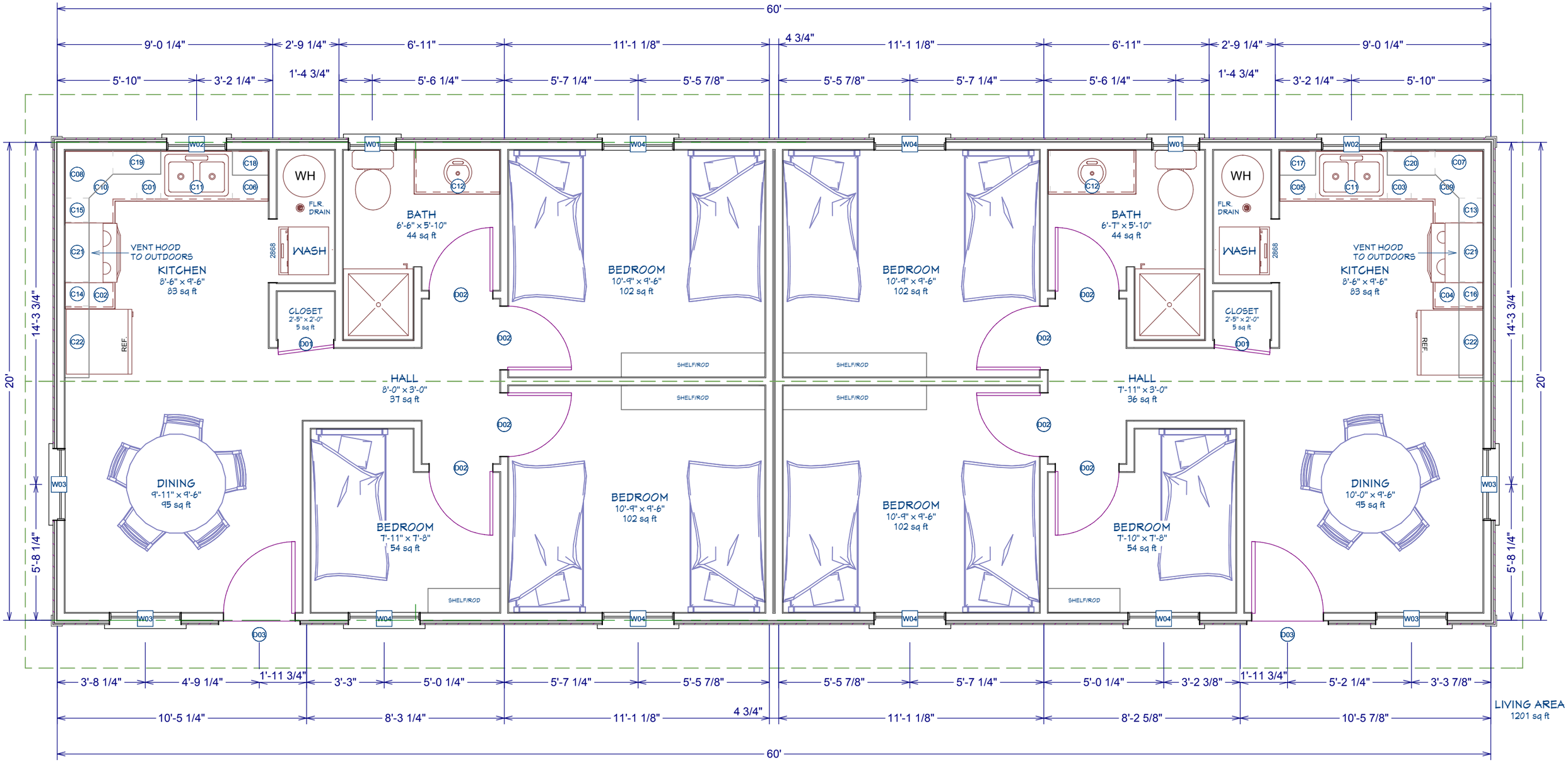


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DESIGNED FOR
MICHIGAN FARMWORKER HOUSING

BY
THOM PHILLIPS

60X20 DOUBLE 5 (10) PERSON DUPLEX - LAUNDRY EA 4-22-15

MAIN FLOOR PLAN

| | DATE | BY |
|---|---|---|
| DWN | | |
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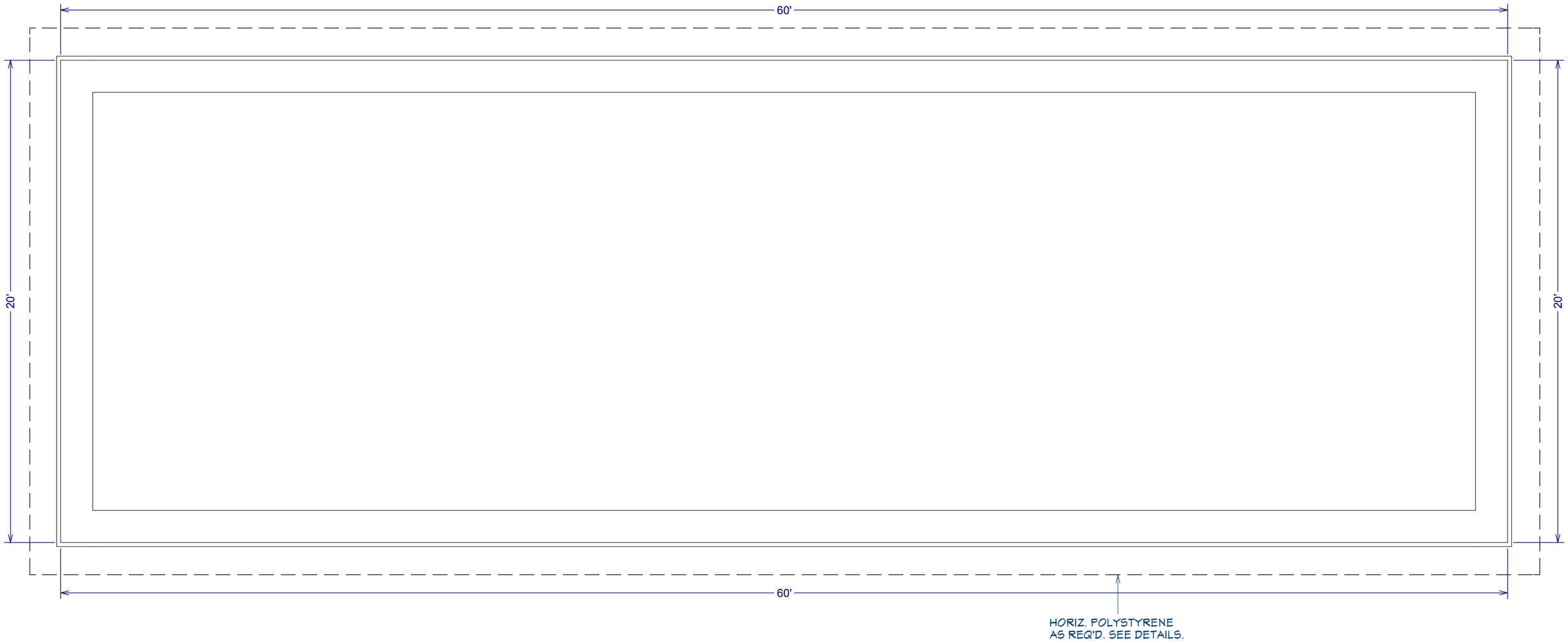
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

1

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FOUNDATION/SLAB PLAN

| | DATE | BY |
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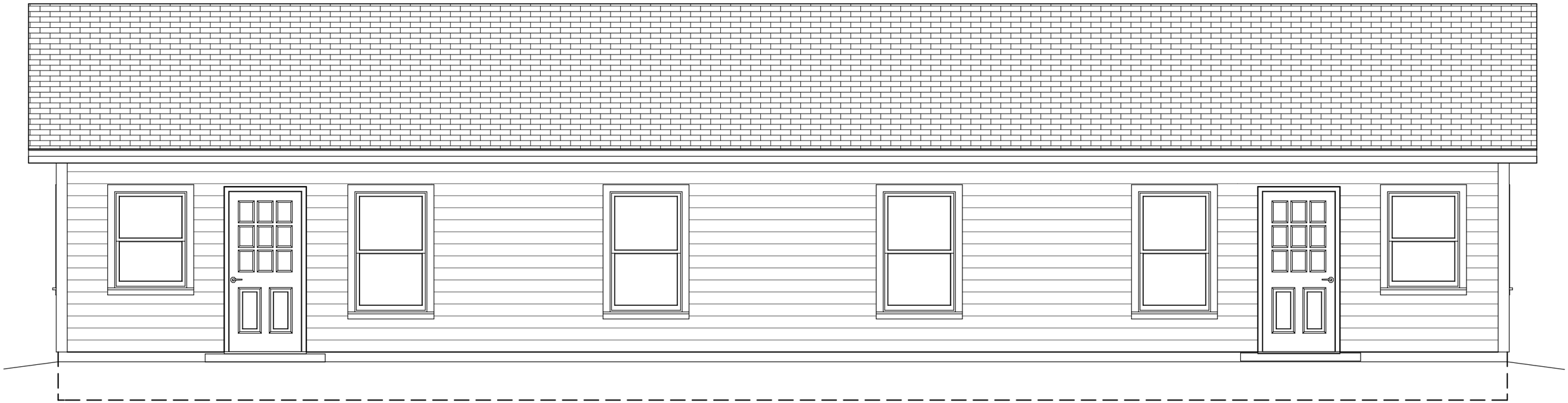
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

2



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FRONT ELEVATION

| | DATE | BY |
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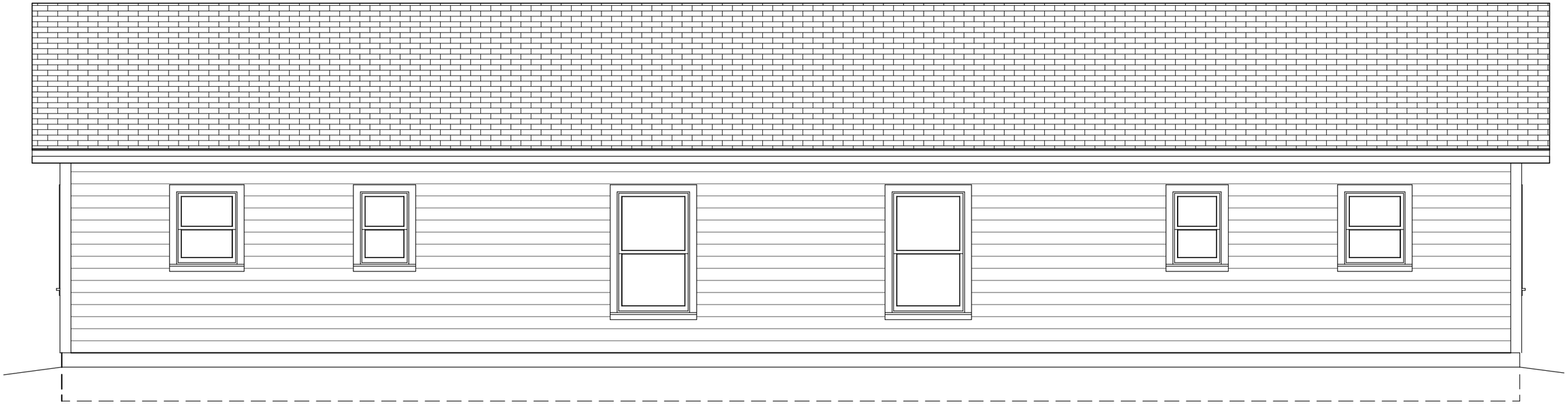
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

3



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BACK ELEVATION

| | DATE | BY |
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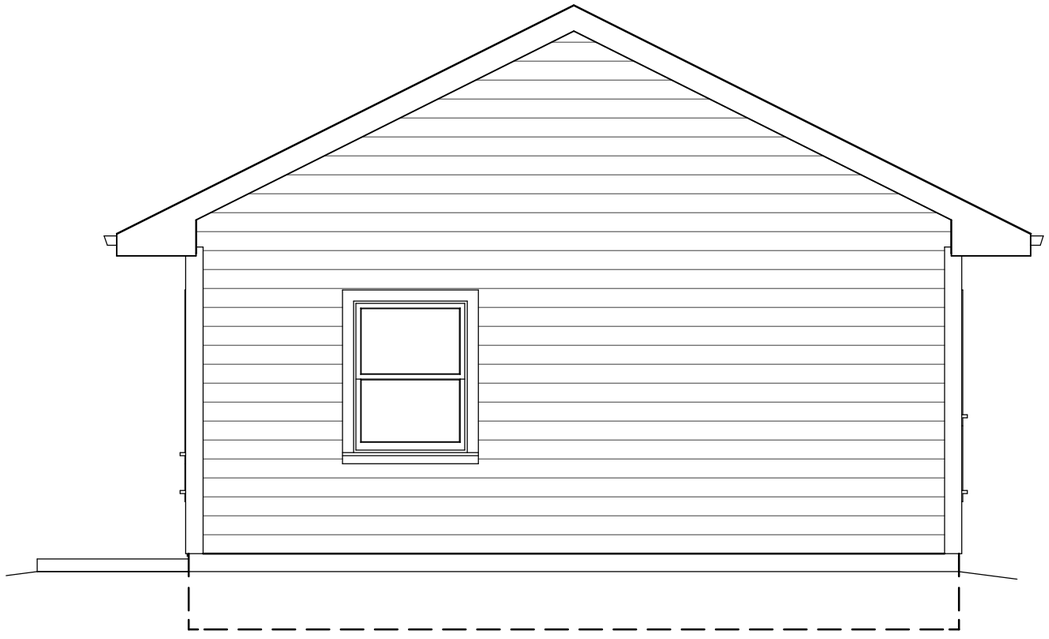
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

4



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RIGHT ELEVATION

| | DATE | BY |
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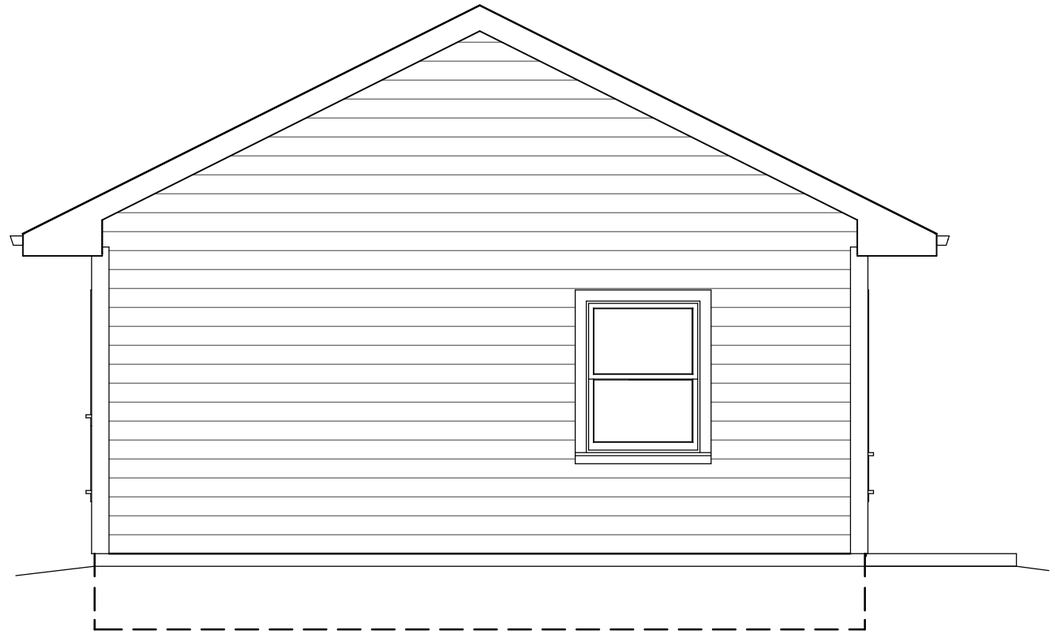
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

5



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LEFT ELEVATION

| | DATE | BY |
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**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

6

## DOOR SCHEDULE

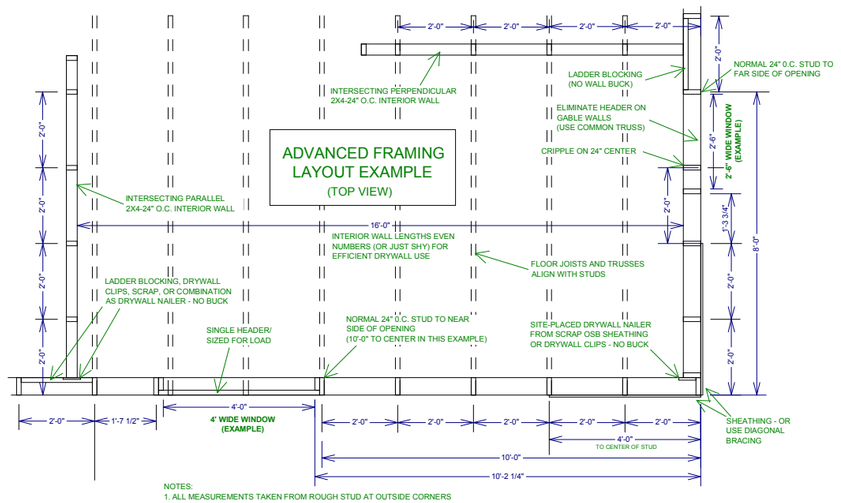
| NUMBER | LABEL | QTY | FLOOR | WIDTH | HEIGHT | R/O | DESCRIPTION | THICKNESS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| D01 | 2468 | 2 | 1 | 28 " | 80 " | 30"X82 1/2" | HINGED DOOR P09 | 1 3/8" | |
| D02 | 2868 | 8 | 1 | 32 " | 80 " | 34"X82 1/2" | HINGED DOOR P09 | 1 3/8" | |
| D03 | 3068 | 2 | 1 | 36 " | 80 " | 38"X82 1/2" | EXT. HINGED DOOR E06 | 1 3/4" | |

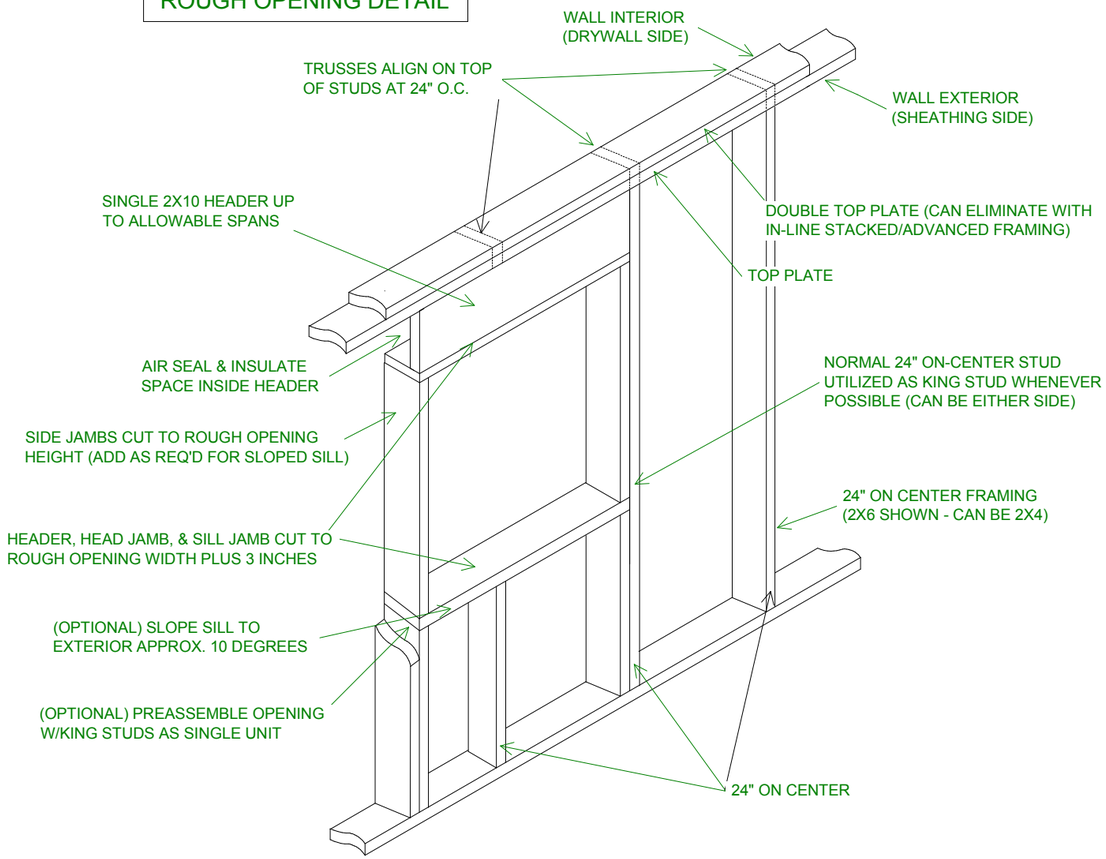
## WINDOW SCHEDULE

| NUMBER | LABEL | QTY | FLOOR | SIZE | DIMENSIONS | WIDTH | HEIGHT | R/O | EGRESS | DESCRIPTION | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W01 | 2030DH | 2 | 1 | 2030DH | 24"X36"DH | 24 " | 36 " | 24"X36" | | DOUBLE HUNG | |
| W02 | 2630DH | 2 | 1 | 2630DH | 30"X36"DH | 30 " | 36 " | 30"X36" | | DOUBLE HUNG | |
| W03 | 3040DH | 4 | 1 | 3040DH | 36"X48"DH | 36 " | 48 " | 36"X48" | | DOUBLE HUNG | |
| W04 | 3050DH | 6 | 1 | 3050DH | 36"X60"DH | 36 " | 60 " | 36"X60" | | DOUBLE HUNG | |

## CABINET SCHEDULE

| NUMBER | LABEL | QTY | FLOOR | WIDTH | DEPTH | HEIGHT | DESCRIPTION | CODE | MANUFACTURER | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| C01 | B12L | 1 | 1 | 12 " | 24 " | 36 " | BASE CABINET | | | |
| C02 | B12L | 1 | 1 | 12 1/8 " | 24 " | 36 " | BASE CABINET | | | |
| C03 | B12R | 1 | 1 | 12 " | 24 " | 36 " | BASE CABINET | | | |
| C04 | B12R | 1 | 1 | 12 1/8 " | 24 " | 36 " | BASE CABINET | | | |
| C05 | B18L | 1 | 1 | 18 " | 24 " | 36 " | BASE CABINET | | | |
| C06 | B18R | 1 | 1 | 18 " | 24 " | 36 " | BASE CABINET | | | |
| C07 | DCW2430L | 1 | 1 | 24 " | 24 " | 30 " | CORNER WALL CABINET | | | |
| C08 | DCW2430R | 1 | 1 | 24 " | 24 " | 30 " | CORNER WALL CABINET | | | |
| C09 | FHB36L | 1 | 1 | 36 " | 36 " | 36 " | CORNER BASE CABINET | | | |
| C10 | FHB36R | 1 | 1 | 36 " | 36 " | 36 " | CORNER BASE CABINET | | | |
| C11 | SB36 | 2 | 1 | 36 " | 24 " | 36 " | BASE CABINET | | | |
| C12 | SB4221 | 2 | 1 | 42 " | 21 " | 36 " | BASE CABINET | | | |
| C13 | W1230L | 1 | 1 | 12 " | 12 " | 30 " | WALL CABINET | | | |
| C14 | W1230L | 1 | 1 | 12 1/8 " | 12 " | 30 " | WALL CABINET | | | |
| C15 | W1230R | 1 | 1 | 12 " | 12 " | 30 " | WALL CABINET | | | |
| C16 | W1230R | 1 | 1 | 12 1/8 " | 12 " | 30 " | WALL CABINET | | | |
| C17 | W1830L | 1 | 1 | 18 " | 12 " | 30 " | WALL CABINET | | | |
| C18 | W1830R | 1 | 1 | 18 " | 12 " | 30 " | WALL CABINET | | | |
| C19 | W2430L | 1 | 1 | 24 " | 12 " | 30 " | WALL CABINET | | | |
| C20 | W2430R | 1 | 1 | 24 " | 12 " | 30 " | WALL CABINET | | | |
| C21 | W3015 | 2 | 1 | 30 " | 12 " | 15 " | WALL CABINET | | | |
| C22 | W3615 | 2 | 1 | 36 " | 12 " | 15 " | WALL CABINET | | | |




NOTES:
1. WITH 92-5/8" PRECUT STUDS & DOUBLE TOP PLATE, TOP OF ROUGH OPENING = APPROX. 83-1/4"
2. WITH 94-1/8" STUDS AND SINGLE TOP PLATE, USE 2X12 HEADER FOR R. O. TOP HEIGHT OF APPROX. 82-7/8" OR SIZE FOR ACTUAL LOAD
   *VERIFY REQUIRMENTS FOR USE OF METAL CONNECTOR PLATES, ETC.
3. HEADER MAY BE DOUBLED FOR EXTREME LOADS - JOIN TO FIRST HEADER TO MAINTAIN INSULATION SPACE TO INTERIOR
4. FOR EXTERIOR DOOR ROUGH OPENING, FUR DOWN AS REQUIRED PER MANUF. SPECS., OR SIZE FOR ACTUAL LOAD
5. HEADER CAN BE ELIMINATED ON GABLE WALL FOR OPENINGS UP TO 8' PER CODE WITH USE OF STANDARD TRUSS (VERIFY W/CODE OFFICIALS)

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MICHIGAN FARMWORKER HOUSING

BY
THOM PHILLIPS

60X20 DOUBLE 5 (10) PERSON DUPLEX - LAUNDRY EA 4-22-15

SCHEDULES, FRAMING DETAILS

| | DATE | BY |
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| DWN | | |
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**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

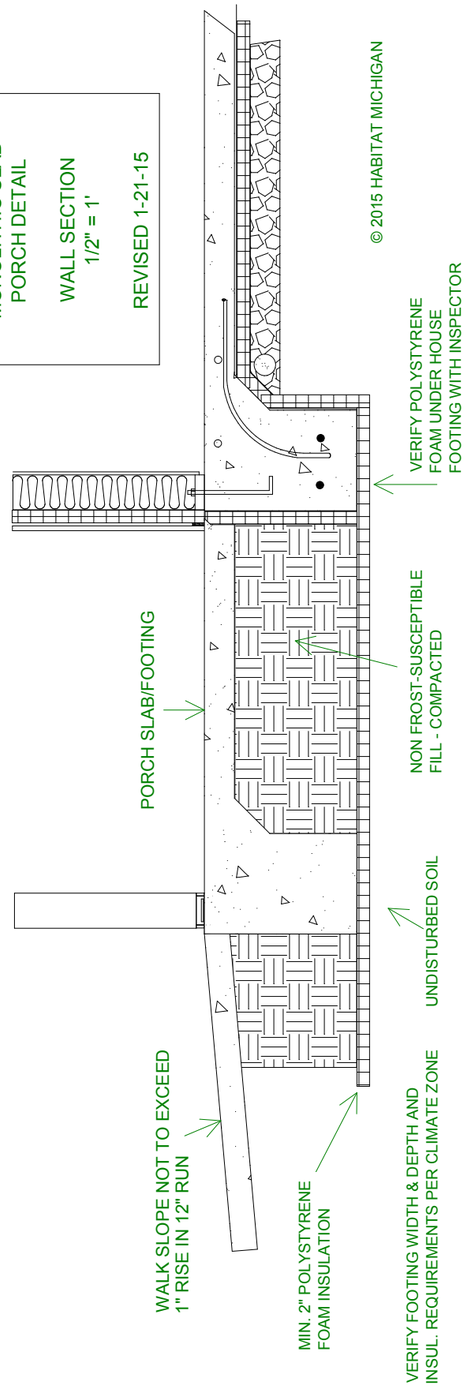
7

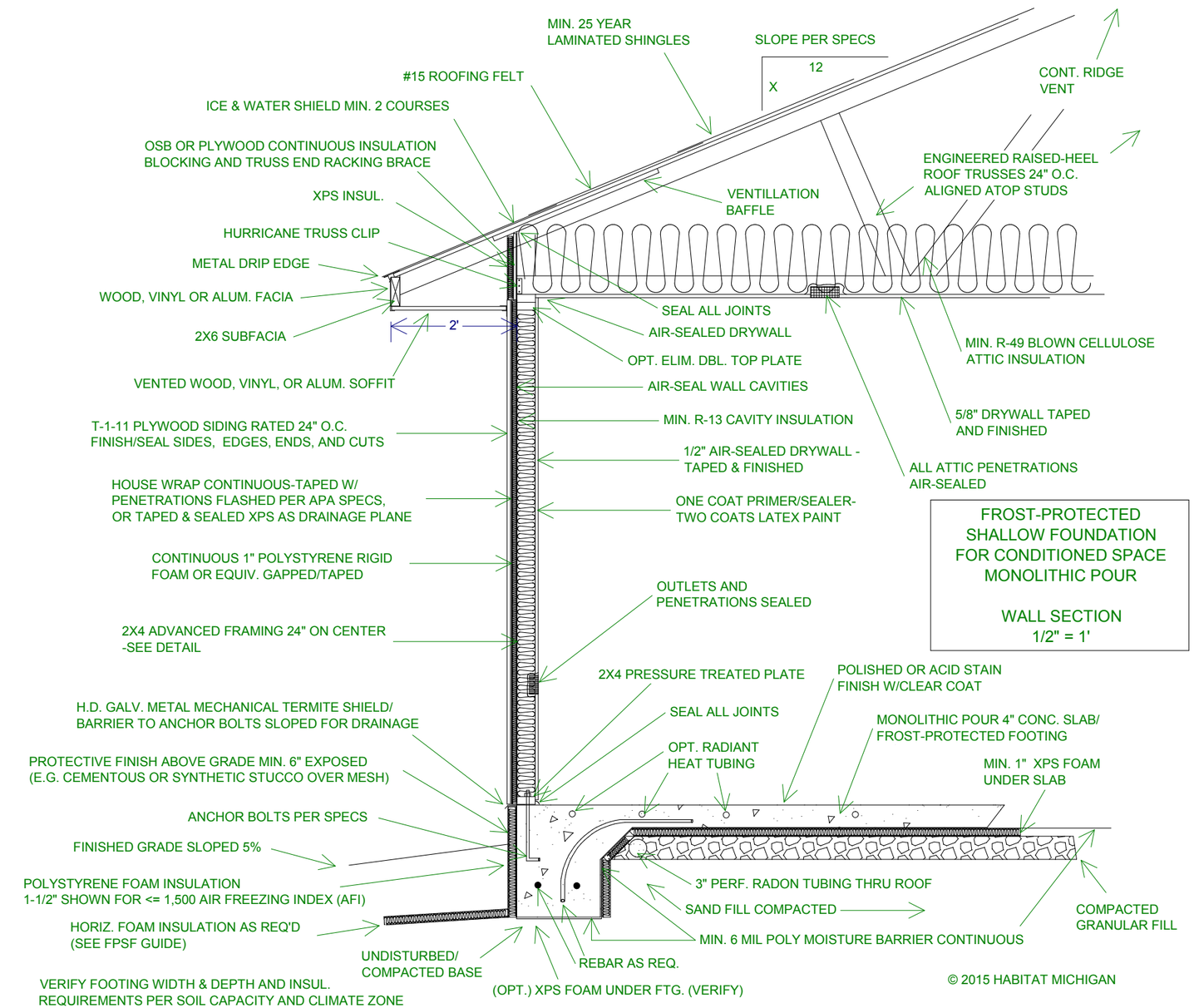
FROST-PROTECTED
SHALLOW FOUNDATION
MONOLITHIC SLAB
PORCH DETAIL

WALL SECTION
1/2" = 1'

REVISED 1-21-15






FROST-PROTECTED
SHALLOW FOUNDATION
FOR CONDITIONED SPACE
MONOLITHIC POUR

WALL SECTION
1/2" = 1'



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BY
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60X20 DOUBLE 5 (10) PERSON DUPLEX - LAUNDRY EA 4-22-15

WALL SECTIONS

| | DATE | BY |
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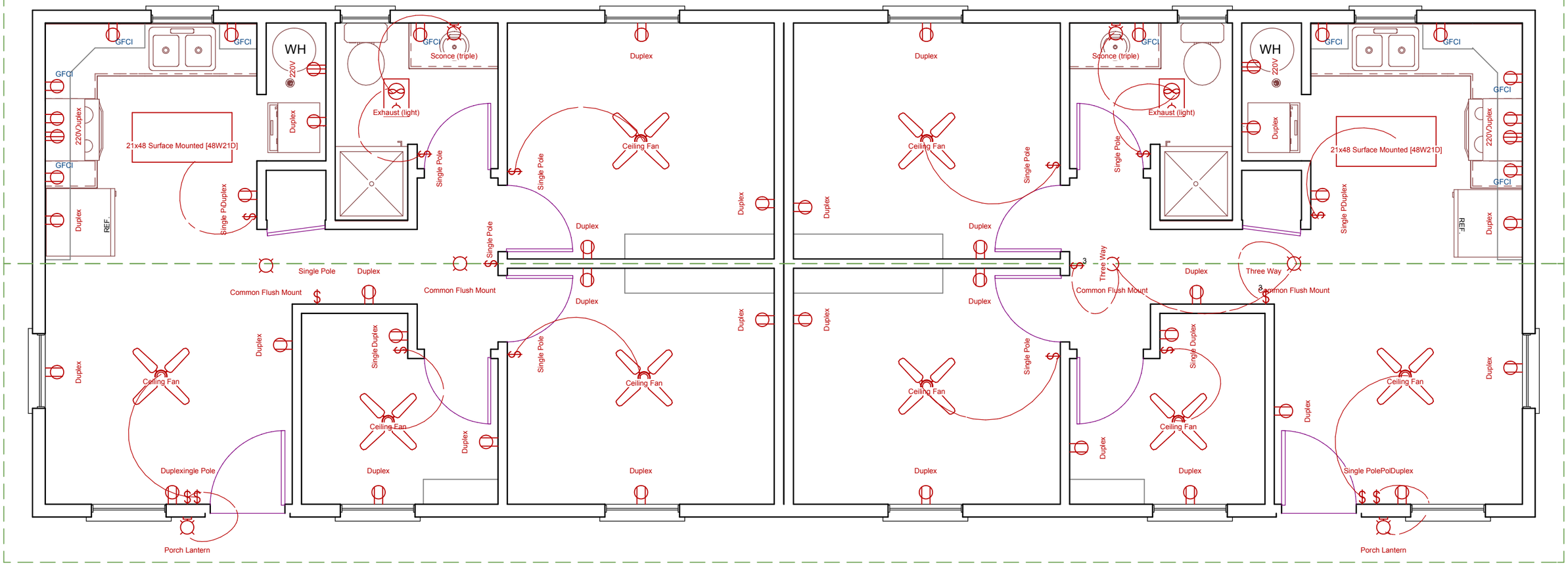
**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

8

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DESIGNED FOR
MICHIGAN FARMWORKER HOUSING

BY
THOM PHILLIPS

60X20 DOUBLE 5 (10) PERSON DUPLEX - LAUNDRY EA 4-22-15

ELECTRICAL LAYOUT

| | DATE | BY |
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| DWN | | |
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**SCALE 1/4" = 1'**

OR AS NOTED

**4-22-15**

**SHEET #**

9

Table 2. Design Values for FPSF Insulation Materials[1]

| Type of Polystyrene Foam | Type of Insulation | Minimum density (pcf) | Nominal R-value (per inch) | Max. Effective R-value (per inch) | | Allowable Bearing Capacity[2] (psf) | Minimum Thickness (inches) | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5v | 5h | 6 | 7v | 7h |
| | | | | Vertical | Horizontal | | Vertical | Horizontal |
| Expanded (EPS) | II | 1.35 | 4.0 | 3.2[3] | 2.6[3] | - | 2.0 | 3.0 |
| Expanded (EPS) | IX | 1.8 | 4.2 | 3.4[3] | 2.8[3] | 1,200 | 1.5 | 2.0 |
| Extruded (XPS) | IV | 1.6 | 5.0 | 4.5 | 4.0 | 1,200 | 1.0 | 1.5 |
| Extruded (XPS) | V | 3.0 | 5.0 | 4.5 | 4.0 | 4,800 | 1.0 | 1.0 |
| Extruded (XPS) | VI | 1.8 | 5.0 | 4.5 | 4.0 | 1,920 | 1.0 | 1.0 |
| Extruded (XPS) | VIII | 2.2 | 5.0 | 4.5 | 4.0 | 2,880 | 1.0 | 1.0 |
| Extruded (XPS) | X | 1.35 | 5.0 | 4.5 | 4.0 | - | 1.5 | 2.0 |

[1] Per ASTM C578, except for effective R-values (shaded column).
[2] Bearing capacity developed for non-cyclic loading conditions at 10% deformation.
[3] SEI/ASCE 32-01 adopted values and restrictions are referenced. Reprinted with permission, American Society of Civil Engineers, "Design and Construction of Frost-Protected Shallow Foundations," 2001. http://www.PUBS.ASCE.org

[1] For additional information on envelope detailing and site grading at foundation perimeter see Durability by Design, A Guide for Residential Builders and Designers, NAHB Research Center for PATH. (May 2002.) http://www.huduser.org/publications/destech/durdesign.html

**TABLE R403.3(2)— AIR-FREEZING INDEX BY COUNTY**

| STATE | AIR-FREEZING INDEX | | | | | |
|---|---|---|---|---|---|---|
| | 1500 or less | 2000 | 2500 | 3000 | 3500 | 4000 |
| Michigan | Berrien, Branch, Cass, Kalamazoo, Macomb, Ottawa, St. Clair, St. Joseph | All other counties not listed | Alger, Charlevoix, Cheboygan, Chippewa, Crawford, Delta, Emmet, Iosco, Kalkaska, Lake, Luce, Mackinac, Menominee, Missaukee, Montmorency, Ogemaw, Osceola, Otsego, Roscommon, Schoolcraft, Wexford | Baraga, Dickinson, Iron, Keweenaw, Marquette | Gogebic, Houghton, Ontonagon | — |

Table 3. Minimum Insulation Requirements for FPSFs in Heated Buildings[1] – Simplified Method

| Air Freezing Index (°F-days)[2] | Vertical Insulation R-Value[3,4] | Horizontal Insulation R-Value[3,5] | | Horizontal Insulation Dimensions per Figure 5. (in inches) | | | Minimum Footing Depth (in inches) |
|---|---|---|---|---|---|---|---|
| | | Along Walls | At Corners | A | B | C | D |
| ≤1,500 | 4.5 | NR | NR | NR | NR | NR | 12 |
| 2,000 | 5.6 | NR | NR | NR | NR | NR | 14 |
| 2,500 | 6.7 | 1.7 | 4.9 | 12 | 24 | 40 | 16 |
| 3,000 | 7.8 | 6.5 | 8.6 | 12 | 24 | 40 | 16 |
| 3,500 | 9.0 | 8.0 | 11.2 | 24 | 30 | 60 | 16 |
| 4,000 | 10.1 | 10.5 | 13.1 | 24 | 36 | 60 | 16 |
| 4,500 | 12.0 | 12.0 | 15.0 | 36 | 48 | 80 | 16 |

[1] Insulation requirements are for protection against frost damage in heated buildings. Greater values may be required to meet energy conservation standards. See Appendix IV.
[2] See Figure 4 for Air Freezing Index values.
[3] Insulation materials shall provide the stated minimum R-values under long-term exposure to below ground conditions in freezing climates. NR indicates that insulation is not required.
[4] Vertical insulation shall be expanded polystyrene insulation or extruded polystyrene insulation.
[5] Horizontal insulation shall be extruded polystyrene insulation.
[6] Interpolation between values is permissible.
[7] Portions of Table 3 reprinted with permission from SEI/ASCE 32-01, American Society of Civil Engineers, "Design and Construction of Frost-Protected Shallow Foundations," 2001. http://www.PUBS.ASCE.org

Figure 5 contains a section and plan view of the possible insulation locations for FPSFs dependant on climate zone of project. The alphabetical characters in Figure 5 correspond to the identically designated columns in Table 3.

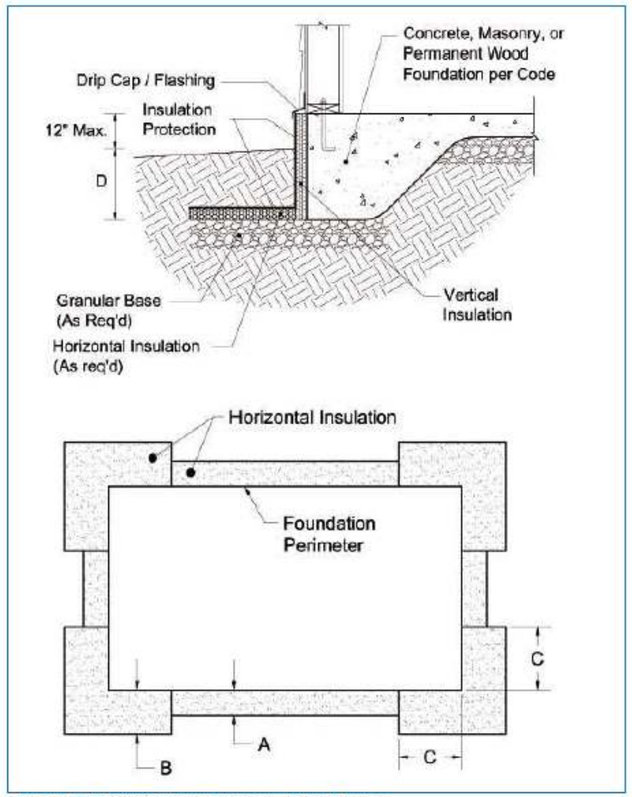


Figure 5. FPSF Simplified Design Parameters – Heated Buildings

DRAWINGS REPRESENT SIMPLIFIED FROST PROTECTED SHALLOW FOUNDATION MINIMUM INSULATION REQUIREMENTS BASED ON 100 YEAR AIR FREEZING INDEX (AFI) WITH SYSTEM AS SHOWN. SUBSLAB INSULATION AND OTHER DETAILS AFFECT MINIMUM INSULATION REQUIREMENTS. FOR ALTERNATIVE APPLICATIONS AND DETAILED INFORMATION, REFER TO THE FOLLOWING PUBLICATIONS:

1) ASCE STANDARD: DESIGN AND CONSTRUCTION FO FROST-PROTECTED SHALLOW FOUNDATIONS AVAILABLE ONLINE AT: http://www.asce.org/templates/publications-book-detail.aspx?id=7997 OR:

2) NAHB RESEARCH CENTER REVISED BUILDER'S GUIDE TO FROST PROTECTED SHALLOW FOUNDATIONS AVAILABLE ONLINE AT: http://www.toolbase.org/Design-Construction-Guides/Foundations/Design-Guide-Frost-Protected-Shallow-Foundation

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FROST PROTECTED SHALLOW FOUNDATION DETAILS

| | DATE | BY |
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SCALE 1/4" = 1'
OR AS NOTED
4-22-15

SHEET #
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