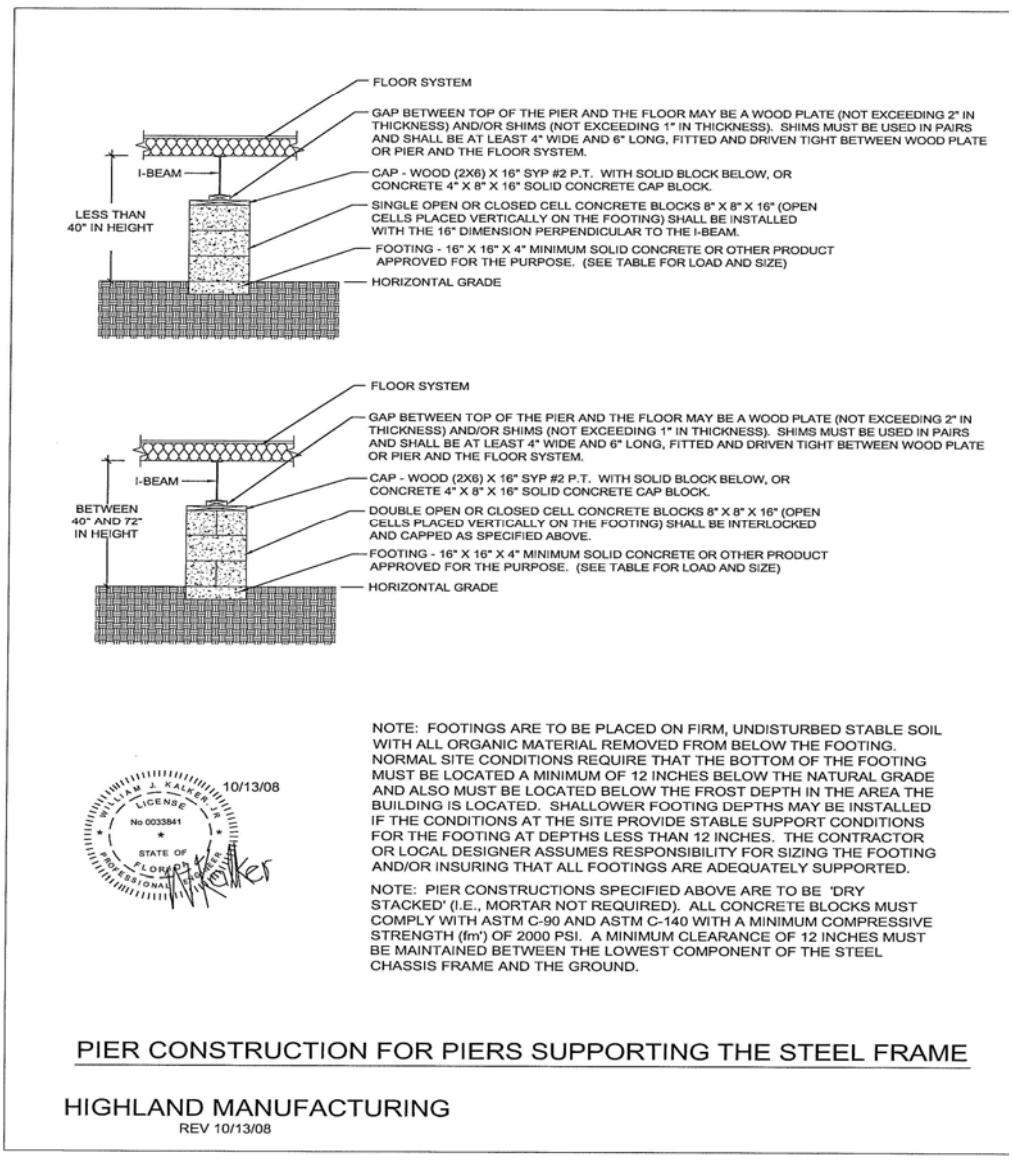
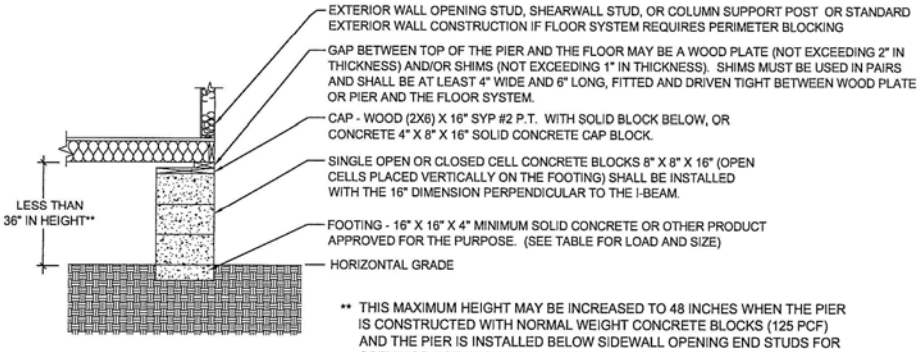



**Need for a stabilizing system.** The manufactured home must be secured against the wind by the use of an anchor assembly or an alternative foundation system. Where site or other conditions prohibit the use of the manufacturer's instructions, a registered engineer or registered architect must design the stabilizing system.

**Flood and seismic forces.** The stabilizing system requirements in this chapter do not consider flood or seismic loads and are not intended for use in flood or seismic hazard areas. In those areas retain a registered engineer or registered architect to design the stabilizing system.

300.073




EXTERIOR WALL OPENING STUD, SHEARWALL STUD, OR COLUMN SUPPORT POST OR STANDARD EXTERIOR WALL CONSTRUCTION IF FLOOR SYSTEM REQUIRES PERIMETER BLOCKING

GAP BETWEEN TOP OF THE PIER AND THE FLOOR MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND/OR SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS MUST BE USED IN PAIRS AND SHALL BE AT LEAST 4" WIDE AND 6" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND THE FLOOR SYSTEM.

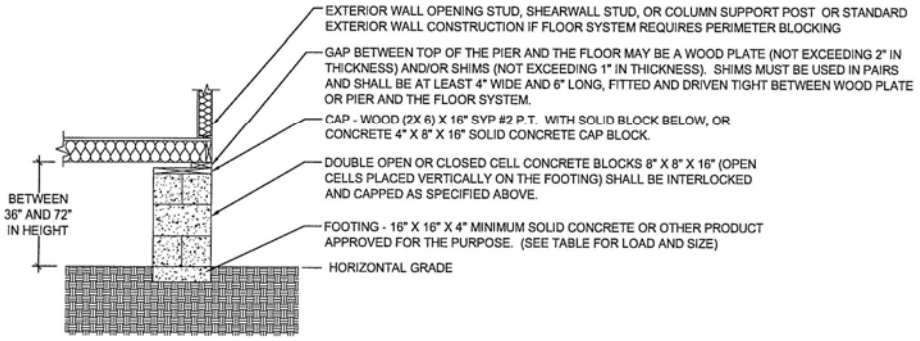
CAP - WOOD (2X6) X 16" SYP #2 P.T. WITH SOLID BLOCK BELOW, OR CONCRETE 4" X 8" X 16" SOLID CONCRETE CAP BLOCK.

SINGLE OPEN OR CLOSED CELL CONCRETE BLOCKS 8" X 8" X 16" (OPEN CELLS PLACED VERTICALLY ON THE FOOTING) SHALL BE INSTALLED WITH THE 16" DIMENSION PERPENDICULAR TO THE I-BEAM.

FOOTING - 16" X 16" X 4" MINIMUM SOLID CONCRETE OR OTHER PRODUCT APPROVED FOR THE PURPOSE. (SEE TABLE FOR LOAD AND SIZE)

HORIZONTAL GRADE

** THIS MAXIMUM HEIGHT MAY BE INCREASED TO 48 INCHES WHEN THE PIER IS CONSTRUCTED WITH NORMAL WEIGHT CONCRETE BLOCKS (125 PCF) AND THE PIER IS INSTALLED BELOW SIDEWALL OPENING END STUDS FOR OPENINGS NOT EXCEEDING 72 INCHES IN WIDTH.




EXTERIOR WALL OPENING STUD, SHEARWALL STUD, OR COLUMN SUPPORT POST OR STANDARD EXTERIOR WALL CONSTRUCTION IF FLOOR SYSTEM REQUIRES PERIMETER BLOCKING

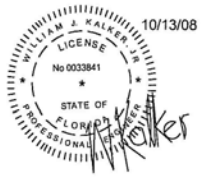
GAP BETWEEN TOP OF THE PIER AND THE FLOOR MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND/OR SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS MUST BE USED IN PAIRS AND SHALL BE AT LEAST 4" WIDE AND 6" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND THE FLOOR SYSTEM.

CAP - WOOD (2X 6) X 16" SYP #2 P.T. WITH SOLID BLOCK BELOW, OR CONCRETE 4" X 8" X 16" SOLID CONCRETE CAP BLOCK.

DOUBLE OPEN OR CLOSED CELL CONCRETE BLOCKS 8" X 8" X 16" (OPEN CELLS PLACED VERTICALLY ON THE FOOTING) SHALL BE INTERLOCKED AND CAPPED AS SPECIFIED ABOVE.

FOOTING - 16" X 16" X 4" MINIMUM SOLID CONCRETE OR OTHER PRODUCT APPROVED FOR THE PURPOSE. (SEE TABLE FOR LOAD AND SIZE)

HORIZONTAL GRADE




NOTE: FOOTINGS ARE TO BE PLACED ON FIRM, UNDISTURBED STABLE SOIL WITH ALL ORGANIC MATERIAL REMOVED FROM BELOW THE FOOTING. NORMAL SITE CONDITIONS REQUIRE THAT THE BOTTOM OF THE FOOTING MUST BE LOCATED A MINIMUM OF 12 INCHES BELOW THE NATURAL GRADE AND ALSO MUST BE LOCATED BELOW THE FROST DEPTH IN THE AREA THE BUILDING IS LOCATED. SHALLOWER FOOTING DEPTHS MAY BE INSTALLED IF THE CONDITIONS AT THE SITE PROVIDE STABLE SUPPORT CONDITIONS FOR THE FOOTING AT DEPTHS LESS THAN 12 INCHES. THE CONTRACTOR OR LOCAL DESIGNER ASSUMES RESPONSIBILITY FOR SIZING THE FOOTING AND/OR INSURING THAT ALL FOOTINGS ARE ADEQUATELY SUPPORTED.

NOTE: PIER CONSTRUCTIONS SPECIFIED ABOVE ARE TO BE 'DRY STACKED' (I.E., MORTAR NOT REQUIRED). ALL CONCRETE BLOCKS MUST COMPLY WITH ASTM C-90 AND ASTM C-140 WITH A MINIMUM COMPRESSIVE STRENGTH (fm') OF 2000 PSI. A MINIMUM CLEARANCE OF 12 INCHES MUST BE MAINTAINED BETWEEN THE LOWEST COMPONENT OF THE STEEL CHASSIS FRAME AND THE GROUND.

## PIER CONSTRUCTION FOR PIERS NOT SUPPORTING THE STEEL FRAME

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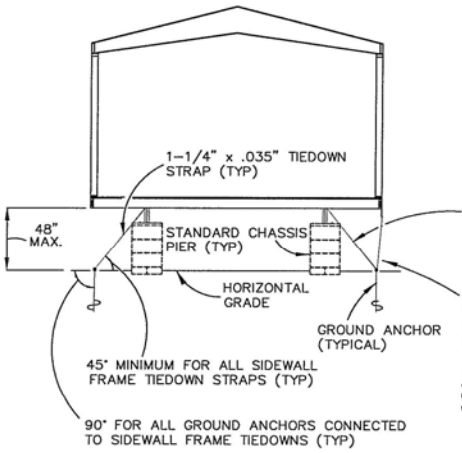
## TYPICAL SINGLEWIDE TIEDOWN INSTALLATION

WIND ZONE 1
(15 PSF)




INSTALL A FRAME TIEDOWN STRAP AT EACH VERTICAL TIEDOWN LOCATION AND CONNECT THE FRAME TIEDOWN STRAP TO THE SAME DOUBLE HEAD GROUND ANCHOR AS THE VERTICAL TIEDOWN STRAP (TYP EACH SIDEWALL)

INSTALL VERTICAL TIEDOWN STRAPS AND/OR SECURE THE VERTICAL TIEDOWN STRAPS TO GROUND ANCHORS AT OPENING STUDS WHEN THE OPENING WIDTH EXCEEDS 48" (TYPICAL EACH SIDEWALL.)

INSTALL CHASSIS FRAME TIEDOWNS ALONG SIDEWALL WITH AN AVERAGE SPACING NOT TO EXCEED THE VALUE SPECIFIED ON DRAWING SW-G-3 WITH THE FIRST FRAME TIEDOWN INSTALLED WITHIN 2' OF THE END OF THE FLOOR (TYP EACH SIDEWALL)

NOTE: SEE DWG SW-G-1 FOR LONGITUDINAL TIEDOWN ANCHOR SPECIFICATIONS

### GENERAL NOTES:

1. ALL TIEDOWN STRAPS AND CONNECTING HARDWARE MUST CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150# ALLOWABLE LOAD MINIMUM (ULTIMATE LOAD 4725# MINIMUM) AND/OR TO COMPLY WITH ASTM D3953-91.
2. ALL GROUND ANCHORS SPECIFIED ON THIS DRAWING MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150# ALLOWABLE WITHDRAWL LOAD MIN..(ULTIMATE LOAD 4725# MIN.) WHEN LOADED BOTH PARALLEL WITH THE ANCHOR SHAFT AND AT A 45° ANGLE FROM THE ANCHOR SHAFT.
3. THE GROUND ANCHORS MUST BE INSTALLED TO THEIR FULL DEPTH IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS (IG. APPROVED FOR INSTALLATION IN THE SOIL TYPE WHICH EXISTS AT THE SITE, ETC.) AND MUST EXTEND BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE.
4. ALL GROUND ANCHORS CONNECTED TO THE SIDEWALL FRAME TIEDOWNS MUST BE PROVIDED WITH STABILIZER PLATES TO MINIMIZE HORIZONTAL MOVEMENT.

| P.E. SEAL | THIRD PARTY | REVISIONS | | | HIGHLAND MFR |
|---|---|---|---|---|---|
| VILLIAM J. KALKER, JR. CERTIFICATE No 0033841 STATE OF FLORIDA PROFESSIONAL ENGINEER 10/13/08 | | LTR: | BY: | DATE: | ANCHORAGE SYSTEM FIELD INSTALLED |
| | | | | | DRAWN BY: WK / DAPIA NO.: / DATE: 10/8/08 / SC: N.T.S. / SW-FI-1 |

Highland MANUFACTURING

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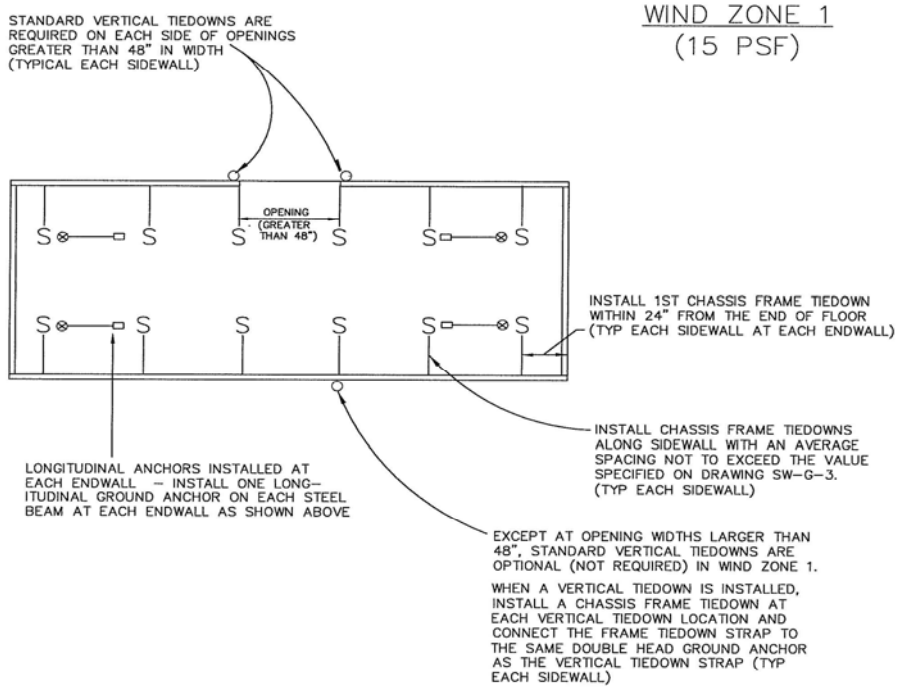
## TYPICAL SINGLEWIDE TIEDOWN PLACEMENT

WIND ZONE 1
(15 PSF)




KEY:

- O = STANDARD VERTICAL TIEDOWN GROUND ANCHOR
- ⊗ = LONGITUDINAL TIEDOWN GROUND ANCHOR
- S = FRAME TIEDOWN STRAP CONNECTION TO STEEL BEAM
- □ = LONG. TIEDOWN STRAP CONNECTION TO STEEL BEAM

| P.E. SEAL | THIRD PARTY | REVISIONS | | | HIGHLAND MFR |
|---|---|---|---|---|---|
| | | LTR: | BY: | DATE: | |
| | | | | | ANCHORAGE SYSTEM FIELD INSTALLED |
| | | | | | DRAWN BY: TC / DAPIA NO.: / SW-G-1 |
| | | | | | DATE: 10/8/08 / SC: N.T.S. |

10/13/08

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1/13/2009

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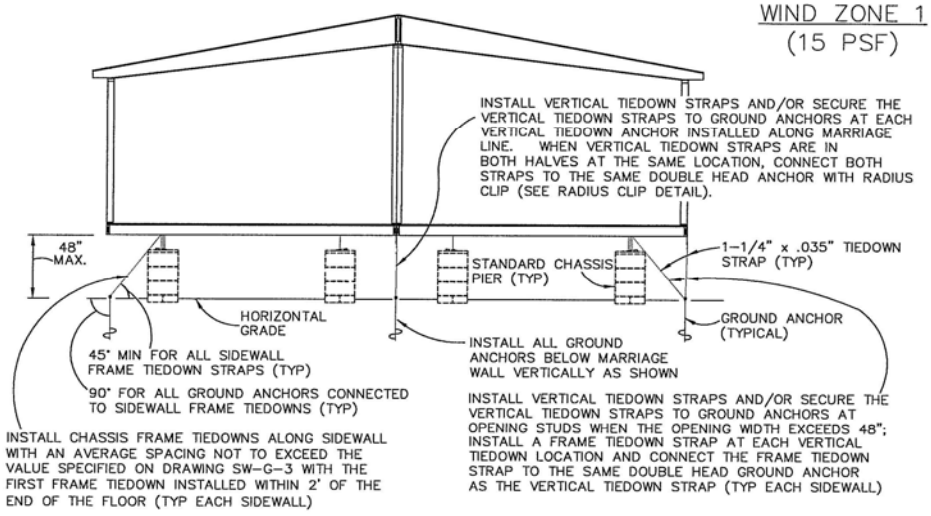
# TYPICAL DOUBLEWIDE TIEDOWN INSTALLATION

WIND ZONE 1
(15 PSF)




NOTE: SEE DWG SW-G-2 FOR LONGITUDINAL TIEDOWN ANCHOR SPECIFICATIONS

## GENERAL NOTES:

1. ALL TIEDOWN STRAPS AND CONNECTING HARDWARE MUST CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150# ALLOWABLE LOAD MINIMUM (ULTIMATE LOAD 4725# MINIMUM) AND/OR TO COMPLY WITH ASTM D3953-91.
2. ALL GROUND ANCHORS SPECIFIED ON THIS DRAWING MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150# ALLOWABLE WITHDRAWL LOAD MIN..(ULTIMATE LOAD 4725# MIN.) WHEN LOADED BOTH PARALLEL WITH THE ANCHOR SHAFT AND AT A 45° ANGLE FROM THE ANCHOR SHAFT.
3. THE GROUND ANCHORS MUST BE INSTALLED TO THEIR FULL DEPTH IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS (IG. APPROVED FOR INSTALLATION IN THE SOIL TYPE WHICH EXISTS AT THE SITE, ETC.) AND MUST EXTEND BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE.
4. ALL GROUND ANCHORS CONNECTED TO THE SIDEWALL FRAME TIEDOWNS MUST BE PROVIDED WITH STABILIZER PLATES TO MINIMIZE HORIZONTAL MOVEMENT.

| P.E. SEAL | THIRD PARTY | REVISIONS | | | HIGHLAND MFR | |
|---|---|---|---|---|---|---|
| | | LTR: | BY: | DATE: | | |
| | | | | | ANCHORAGE SYSTEM NEAR BEAM | |
| | | | | | DRAWN BY: TC | DAPIA NO.: SW-FI-2 |
| | | | | | DATE: 10/8/08 | SC: N.T.S. |

10/13/08

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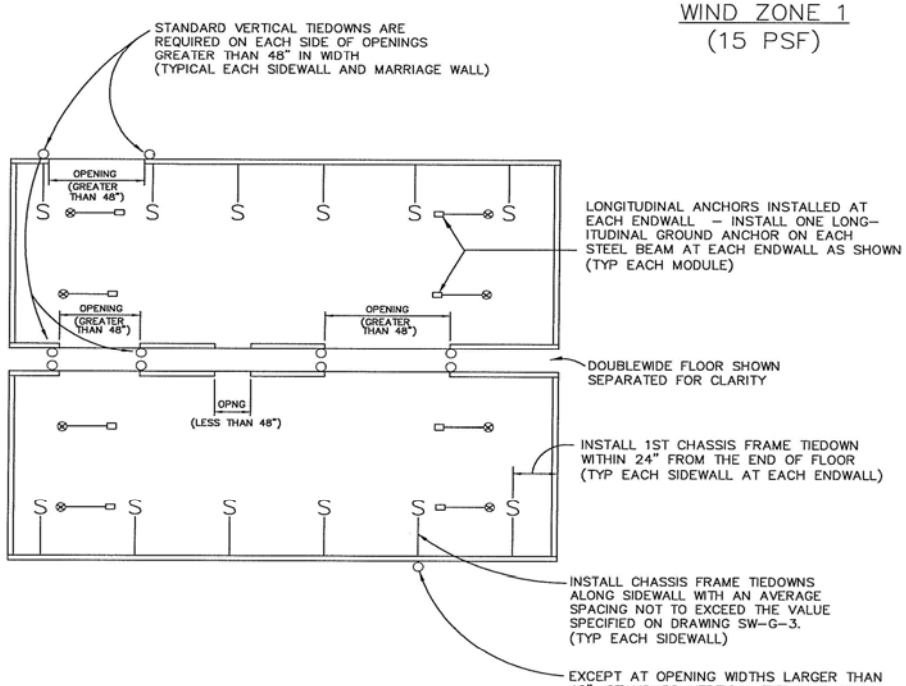
# TYPICAL DOUBLEWIDE TIEDOWN PLACEMENT

NOTE: FOR TRIPLEWIDE OR LARGER BUILDINGS, INSTALL THE MATE LINE ANCHORS SHOWN BELOW ON EACH MATE LINE IN THE LARGER BUILDING, INSTALL THE SIDEWALL ANCHORS SHOWN BELOW ON EACH OF THE EXTERIOR SIDEWALLS (ONLY) OF THE LARGER BUILDING AND INSTALL ONE LONGITUDINAL ANCHOR ON EACH STEEL BEAM AT EACH ENDWALL IN THE LARGER BUILDING AS SHOWN BELOW.

WIND ZONE 1
(15 PSF)




KEY:

- ○ = STANDARD VERTICAL TIEDOWN GROUND ANCHOR
- ⊗ = LONGITUDINAL TIEDOWN GROUND ANCHOR
- S = FRAME TIEDOWN STRAP CONNECTION TO STEEL BEAM
- □ = LONG. TIEDOWN STRAP CONNECTION TO STEEL BEAM

| P.E. SEAL | THIRD PARTY | REVISIONS | | | HIGHLAND MFR |
|---|---|---|---|---|---|
| WILLIAM J. KALKER III CERTIFICATE No. 0033841 STATE OF FLORIDA PROFESSIONAL ENGINEER 10/13/08 | | LTR: | BY: | DATE: | ANCHORAGE SYSTEM FIELD INSTALLED |
| | | | | | DRAWN BY: TC / DAPIA NO.: SW–G–2 |
| | | | | | DATE: 10/8/08 / SC: N.T.S. |

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# Install Stabilizing Systems

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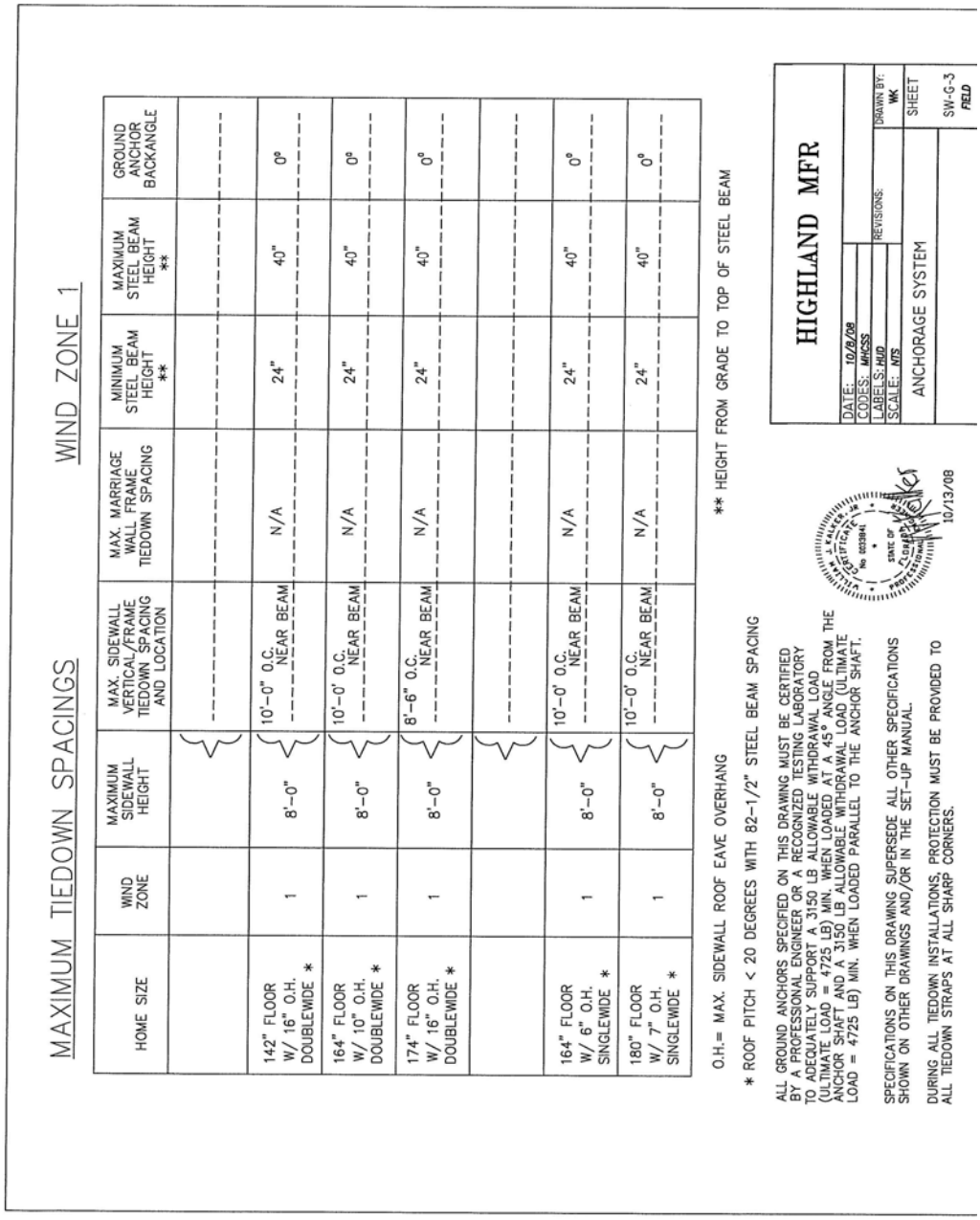

MAXIMUM TIEDOWN SPACINGS — WIND ZONE 1

| HOME SIZE | WIND ZONE | MAXIMUM SIDEWALL HEIGHT | MAX. SIDEWALL VERTICAL/FRAME TIEDOWN SPACING AND LOCATION | MAX. MARRIAGE WALL FRAME TIEDOWN SPACING | MINIMUM STEEL BEAM HEIGHT ** | MAXIMUM STEEL BEAM HEIGHT ** | GROUND ANCHOR BACKANGLE |
|---|---|---|---|---|---|---|---|
| | | | ---------- | ---------- | ---------- | ---------- | ---------- |
| 142" FLOOR W/ 16" O.H. DOUBLEWIDE * | 1 | 8'-0" | 10'-0" O.C. NEAR BEAM | N/A | 24" | 40" | 0° |
| 164" FLOOR W/ 10" O.H. DOUBLEWIDE * | 1 | 8'-0" | 10'-0" O.C. NEAR BEAM | N/A | 24" | 40" | 0° |
| 174" FLOOR W/ 16" O.H. DOUBLEWIDE * | 1 | 8'-0" | 8'-6" O.C. NEAR BEAM | N/A | 24" | 40" | 0° |
| | | | ---------- | ---------- | ---------- | ---------- | ---------- |
| 164" FLOOR W/ 6" O.H. SINGLEWIDE * | 1 | 8'-0" | 10'-0" O.C. NEAR BEAM | N/A | 24" | 40" | 0° |
| 180" FLOOR W/ 7" O.H. SINGLEWIDE * | 1 | 8'-0" | 10'-0" O.C. NEAR BEAM | N/A | 24" | 40" | 0° |

O.H.= MAX. SIDEWALL ROOF EAVE OVERHANG

** HEIGHT FROM GRADE TO TOP OF STEEL BEAM

* ROOF PITCH < 20 DEGREES WITH 82-1/2" STEEL BEAM SPACING

ALL GROUND ANCHORS SPECIFIED ON THIS DRAWING MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150 LB ALLOWABLE WITHDRAWAL LOAD (ULTIMATE LOAD = 4725 LB) MIN. WHEN LOADED AT A 45° ANGLE FROM THE ANCHOR SHAFT AND A 3150 LB ALLOWABLE WITHDRAWAL LOAD (ULTIMATE LOAD = 4725 LB) MIN. WHEN LOADED PARALLEL TO THE ANCHOR SHAFT.

SPECIFICATIONS ON THIS DRAWING SUPERSEDE ALL OTHER SPECIFICATIONS SHOWN ON OTHER DRAWINGS AND/OR IN THE SET-UP MANUAL.

DURING ALL TIEDOWN INSTALLATIONS, PROTECTION MUST BE PROVIDED TO ALL TIEDOWN STRAPS AT ALL SHARP CORNERS.

10/13/08

HIGHLAND MFR

DATE: 10/8/08
CODES: MHCSS
LABELS: HUD
SCALE: NTS
REVISIONS:
DRAWN BY: WK
ANCHORAGE SYSTEM
SHEET SW-G-3 FIELD

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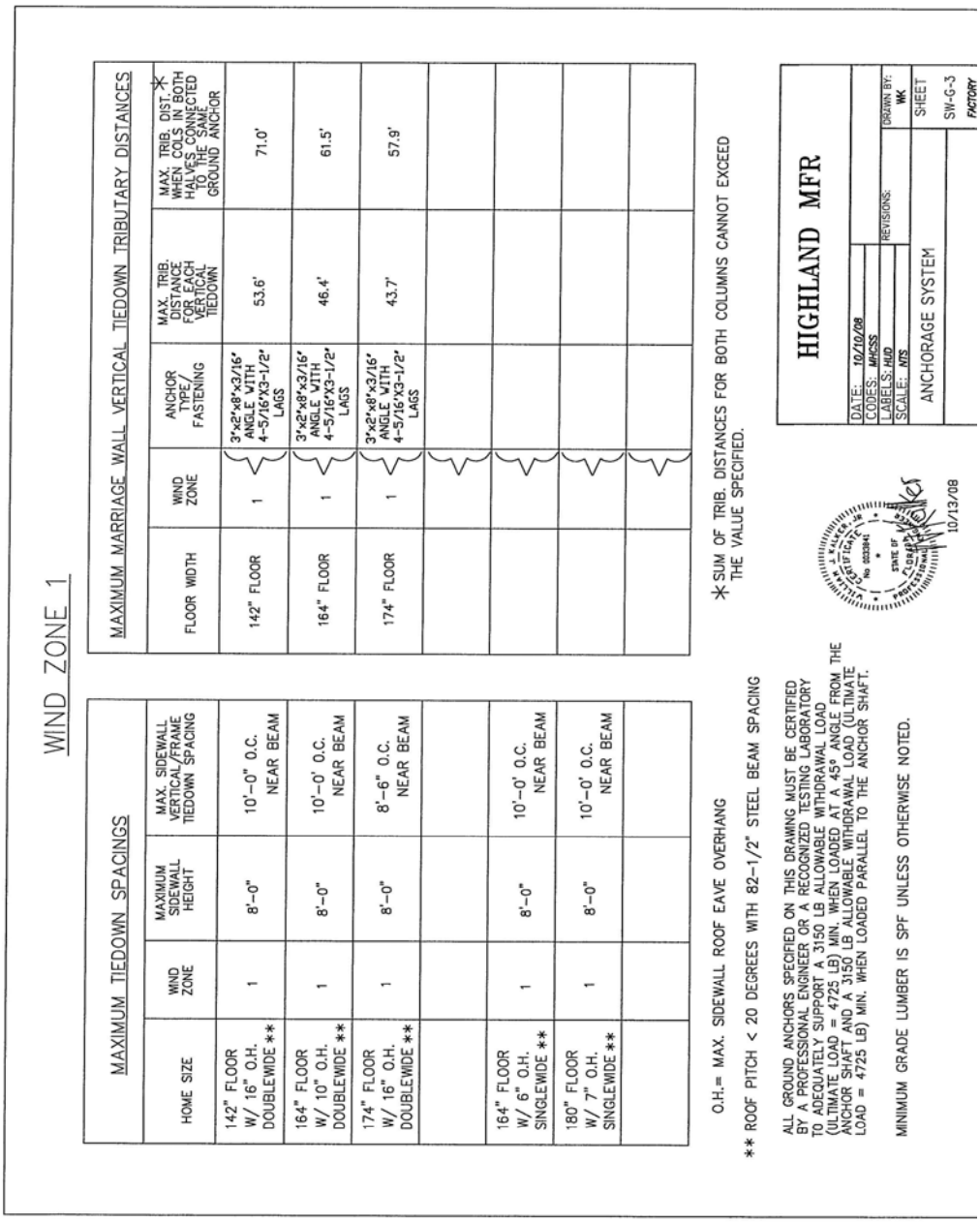

WIND ZONE 1

MAXIMUM TIEDOWN SPACINGS

| HOME SIZE | WIND ZONE | MAXIMUM SIDEWALL HEIGHT | MAX. SIDEWALL VERTICAL/FRAME TIEDOWN SPACING |
|---|---|---|---|
| 142" FLOOR W/ 16" O.H. DOUBLEWIDE ** | 1 | 8'-0" | 10'-0" O.C. NEAR BEAM |
| 164" FLOOR W/ 10" O.H. DOUBLEWIDE ** | 1 | 8'-0" | 10'-0' O.C. NEAR BEAM |
| 174" FLOOR W/ 16" O.H. DOUBLEWIDE ** | 1 | 8'-0" | 8'-6" O.C. NEAR BEAM |
| | | | |
| 164" FLOOR W/ 6" O.H. SINGLEWIDE ** | 1 | 8'-0" | 10'-0' O.C. NEAR BEAM |
| 180" FLOOR W/ 7" O.H. SINGLEWIDE ** | 1 | 8'-0" | 10'-0' O.C. NEAR BEAM |
| | | | |

MAXIMUM MARRIAGE WALL VERTICAL TIEDOWN TRIBUTARY DISTANCES

| FLOOR WIDTH | WIND ZONE | ANCHOR TYPE/ FASTENING | MAX. TRIB. DISTANCE FOR EACH VERTICAL TIEDOWN | MAX. TRIB. DIST.* WHEN COILS IN BOTH HALVES CONNECTED TO SAME GROUND ANCHOR |
|---|---|---|---|---|
| 142" FLOOR | 1 | 3"x2"x8"x3/16" ANGLE WITH 4-5/16"X3-1/2" LAGS | 53.6' | 71.0' |
| 164" FLOOR | 1 | 3"x2"x8"x3/16" ANGLE WITH 4-5/16"X3-1/2" LAGS | 46.4' | 61.5' |
| 174" FLOOR | 1 | 3"x2"x8"x3/16" ANGLE WITH 4-5/16"X3-1/2" LAGS | 43.7' | 57.9' |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

* SUM OF TRIB. DISTANCES FOR BOTH COLUMNS CANNOT EXCEED THE VALUE SPECIFIED.

O.H.= MAX. SIDEWALL ROOF EAVE OVERHANG

** ROOF PITCH < 20 DEGREES WITH 82-1/2" STEEL BEAM SPACING

ALL GROUND ANCHORS SPECIFIED ON THIS DRAWING MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER OR A RECOGNIZED TESTING LABORATORY TO ADEQUATELY SUPPORT A 3150 LB ALLOWABLE WITHDRAWAL LOAD (ULTIMATE LOAD = 4725 LB) MIN. WHEN LOADED AT A 45° ANGLE FROM THE ANCHOR SHAFT AND A 3150 LB ALLOWABLE WITHDRAWAL LOAD (ULTIMATE LOAD = 4725 LB) MIN. WHEN LOADED PARALLEL TO THE ANCHOR SHAFT.

MINIMUM GRADE LUMBER IS SPF UNLESS OTHERWISE NOTED.

STATE OF FLORIDA PROFESSIONAL ENGINEER
10/13/08

HIGHLAND MFR

DATE: 10/10/08
CODES: MHCSS
LABELS: HUD
SCALE: NTS
REVISIONS:
DRAWN BY: WK

ANCHORAGE SYSTEM

SHEET SW-G-3
FACTORY

MODEL MANUFACTURER'S INSTALLATION MANUAL

RADCO FEDERAL MANUFACTURED HOUSING CONSTRUCTION & SAFETY STANDARDS 07 APPROVED
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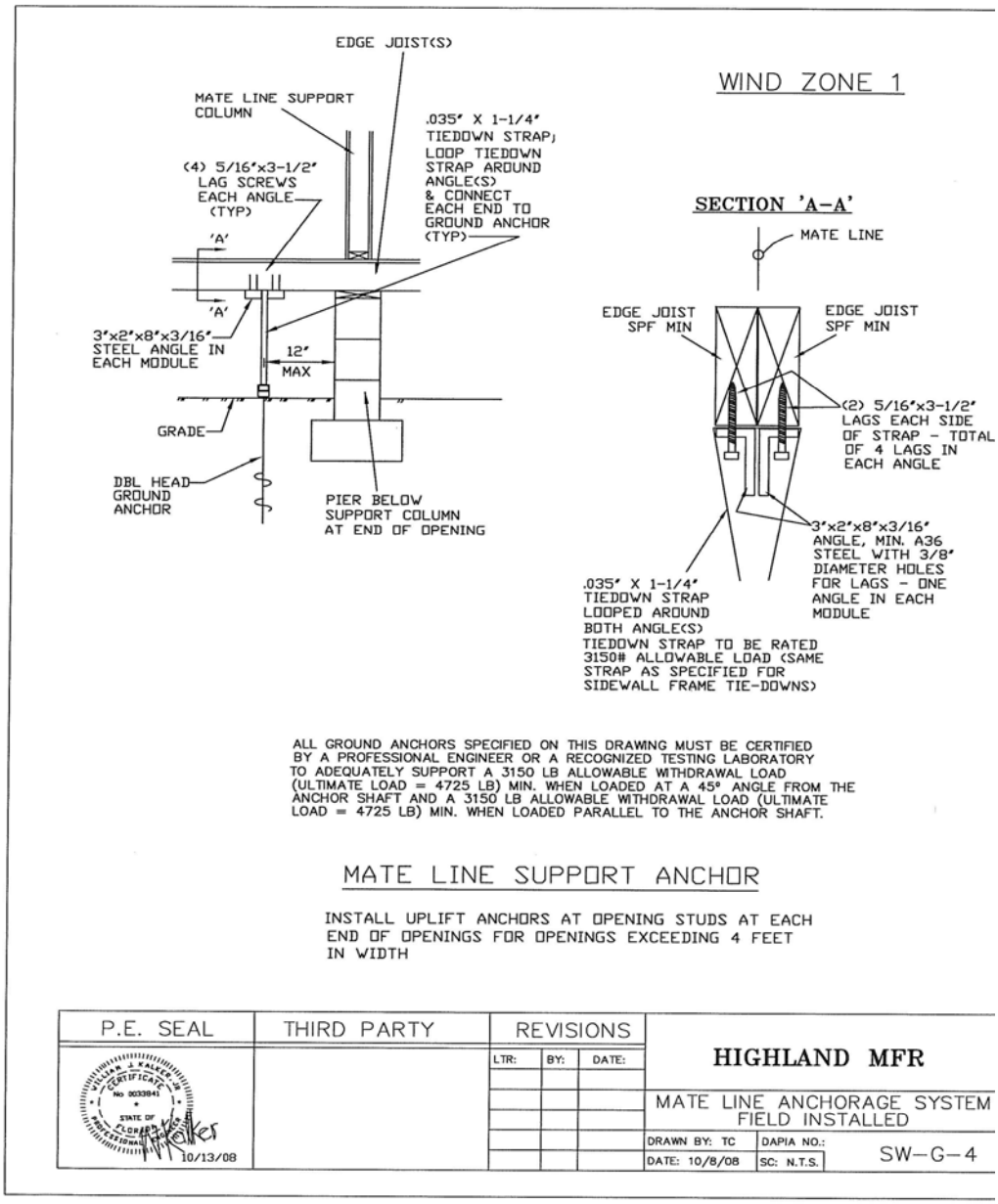
# Install Stabilizing Systems



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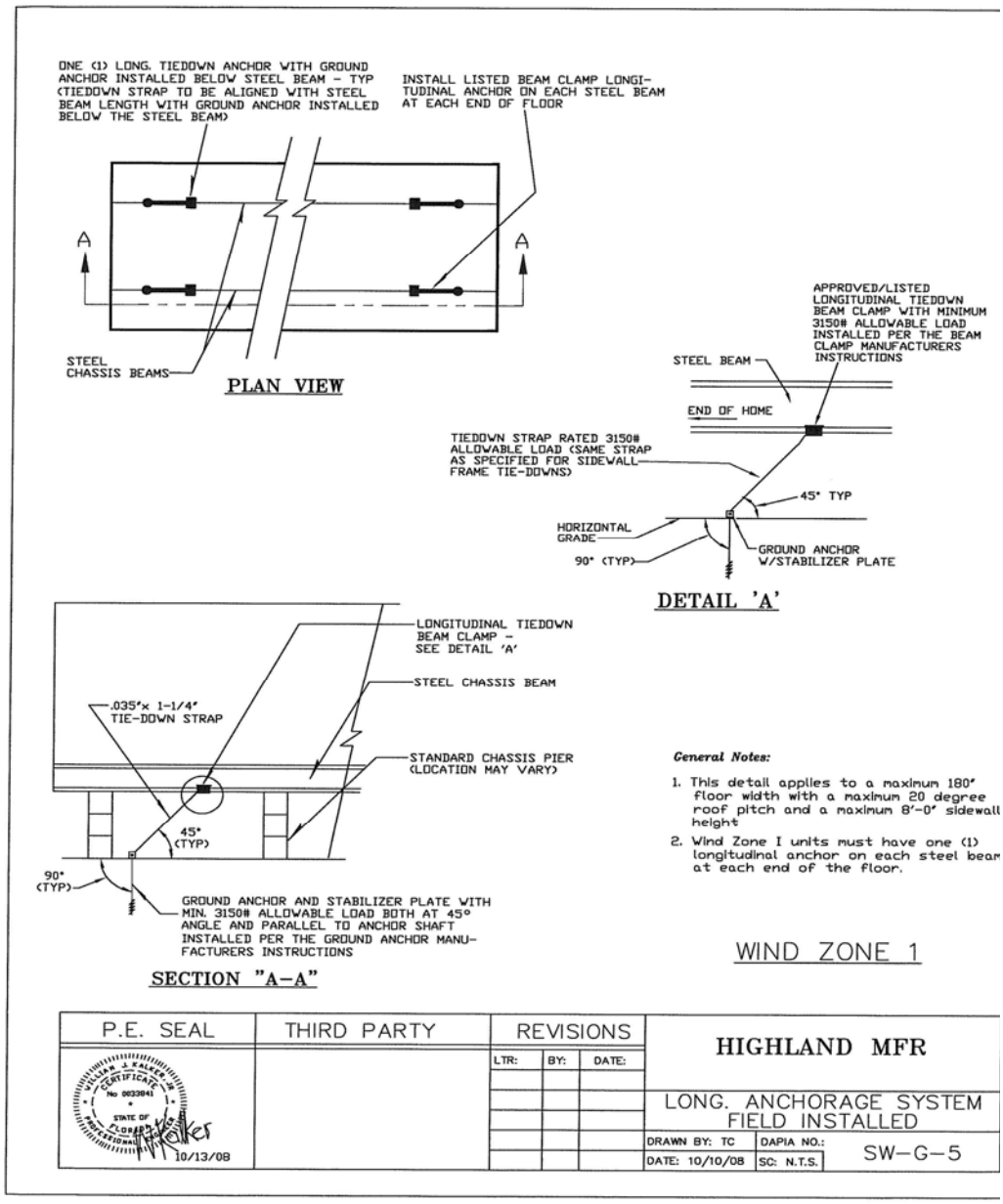
1/13/2009



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1/13/2009