

Building In Franklin County



MANUFACTURED HOME *Inspection Guidelines*

Franklin County Building Department
400 E. Locust St. Room 006
Union, MO 63084

Inspections MUST be scheduled by 3 p.m. the previous working day before you need them!

636-583-6384

Office hours are 8:00 am to 4:30 p.m. Mon. - Fri.

The Inspectors are in the office from 8:00 a.m. to 8:30 a.m. and from 4:00 p.m. to 4:30 p.m. It is during those times that you will be able to speak with your inspector regarding a specific inspection or code question.

Please check your approved plans for additional information contained in your permit packet!

***INFORMATION IN THIS BOOKLET IS A GUIDELINE AND SUBJECT TO CHANGE WITHOUT NOTICE.

The Manufactured Home Inspection Guidelines book is designed to give the applicant an idea what items the building inspectors will be checking. Included in this book are copies of the actual checklists that the inspectors use when performing inspections. These checklists may be revised from time to time and the inspectors will use the most current checklist available when making an inspection.

Manufactured Home Inspections:

Location	- Setbacks from road & property line
Setup	- Piers, Slab/Pad or Runners
Foundation	- Footing, Foundation walls
Underfloor Plumbing	- Plumbing beneath a basement floor
On-Site Individual Sewage System	- Tank, Drainfield
Deck, Landing	- Pier Holes, Framing
Electric Service	- Electric Trench, **Electric Service
Occupancy / Final	- Tie-downs, Supports, Blocking, Sewer Hook-up, Deck

** Electric Service Inspections on manufactured homes placed on *piers, slab/pad, or runners*, will only be performed and granted at the time of the **Final Inspection**.

Reinspection Fees:

If a list of corrections to be made was given to the owner or contractor and the Inspector is called to perform a reinspection and items on their list have not been corrected, a \$50.00 **reinspection fee** will be assessed and must be paid *prior to the next inspection*.

No Exceptions !

Manufactured Homes

1. **Paperwork**--Complete the application form with the following information:
 - a. **Information on Property Owner**
 - (1) Owner's name;
 - (2) Current mailing address;
 - (3) Phone number.
 - b. **Information on Building Site**
 - (1) Public/private road name-directions and map to property;
 - (2) Subdivision and lot number;
 - (3) Copy of Plat *showing road right-of-way*;
 - (4) Tax parcel identification number-
(16 digits located in boxes on the upper left hand corner of your real estate tax bill);
 - (5) ENS# -numbers staked at driveways.
 - c. **Structure Type**
 - (1) year of manufactured home;
 - (2) size of manufactured home;
 - (3) make of manufactured home.
 - d. **Private Subdivision Restrictions Form**
 - (1) Self-explanatory form. Current property owner's signature *is required* on this form regardless of whether your property is in a subdivision or not.
 - e. **Entrance Permit**
 - f. **Escrow**
2. **PERMIT FEES vary according to structure use and size. A \$25.00 "NON-REFUNDABLE" DEPOSIT IS REQUIRED AT TIME OF APPLICATION. * ALL PERMITS MUST BE PAID IN FULL PRIOR TO YOUR FIRST BUILDING INSPECTION.**
3. **Site Plan**- An outline of your property showing all property lines and building setback lines as well as road right-of-way. Show the proposed location of your manufactured home, well, septic tank and drainfield in relation to one another and show distances (footage) between each structure and estimate distance to property lines. Also locate any ponds, creeks, lakes or ditches; and show the direction the land slopes.
4. **On-Site Sewer Requirements** – Replacement of an existing manufactured home may require an upgrade or modification of the existing on-site sewage disposal system. When there is an increase in the number of bedrooms, the disposal system must be brought up to current standards (Ordinance 8.6). When the new manufactured home has the same number of bedrooms, a site inspection is required to determine if the current system is adequate (Ordinance 8.6.1).
Note: If a lagoon system is desired, a soil evaluation is required (Ordinance 8.5.1).

a. **Soil Evaluation** -- Evaluation results accompanied by a detailed site plan, complete sewer design data and choice of installer are mandatory at the time of application - regardless of acreage size. Any soil evaluation not meeting acceptable permeability rates being described as *(requiring an alternative system)* will require an engineered sewer design or possibly a lagoon. **The person you hire to perform a soil evaluation AND install your septic system must be certified and registered with the Franklin County Building Dept. or**

b. **Percolation Test**-- Percolation test results accompanied by a detailed site plan, complete sewer design data, and choice of installer are mandatory at the time of application - regardless of acreage size. A percolation test failing to meet an acceptable perc rate will require an engineered sewer design. **The person you hire to perform a percolation test AND install your septic system must be certified and registered with the Franklin County Building Dept.**

5. **Setup Instructions** -- Submit a plan on how you intend to setup the manufactured home, whether new or used. **NOTE: NEW MANUFACTURED HOMES MUST SUBMIT THE SETUP INSTRUCTIONS AND/OR PIER PLAN FROM THE MANUFACTURER.**

a. **Floor plan** -- A floor plan must be submitted for Double-Wides and Modulars.

b. **Piers** - You *must* locate piers no more than 2 ft. from either end and not more than 8 ft. center-to-center under the main rails (See Figure 4.1, 4.2, & 4.3 NCSBCS/ANSI) or per manufacturer's manual. Submit a pier plan from the manufacturer for your specific home for ALL NEW homes. Piers to be 24" x 24" x 24" minimum.

5. **Tiedowns** - Draw a plan showing how many and their spacing. They can be 8-9 ft. apart, but no more than 10 ft. apart, with one (1) within 2 ft. of each end or per Manufacturer's Manual.

d. **Slabs** - Can be 6 inches deep with 6 inch wire mesh or #4 rebar 2 foot on center each way; or 4 inches deep with a frostwall.

e. **Runners** - Must be 6 inches deep x 24 inches wide the length of the home with a minimum of 2 #4 rebar.

f. **Cross Runners** - 24" deep and 24" wide the width of the home.

g. **Footing & Foundation Plan**- Show footings and foundation wall with dimensions and placement of steel. Show frostwalls where applicable.

h. **Basement Floor Plan** - Show overview of basement; locating placement of posts, beam size & pound, basement stairs, windows, doors, label any finished areas and show fixtures where applicable.

6. **Electric** -- Provide the size of electric service to be installed and the name of the electric company. If location is in an *Ameren UE* service area, please contact them at 1-800-552-7583 for a nine digit *premise number* and inform this department of that number at the time of application.

a. Electric service for manufactured homes placed on piers, pads or runners will not be approved until all phases of installation are complete. The home must be blocked, anchored or tied down, and connected to an approved sewer or septic system. A landing or deck must be in place, and electric wiring and panels installed.

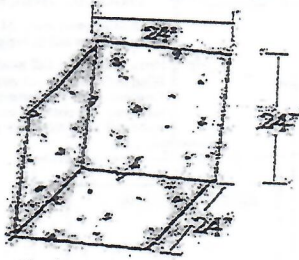
b. On modular homes on full basements or on crawlspace, electric will not be approved until the home is tied down and has been hooked up to an approved sewer system. Remaining items to be completed prior to occupancy and final inspection of the home.

7. **INSPECTIONS** -- All inspections must be called in by 3:00 p.m. the day before you need them. Piers or foundations cannot be poured or sewage systems covered until they are inspected and approved. If there are any questions, please call 636-583-6384.

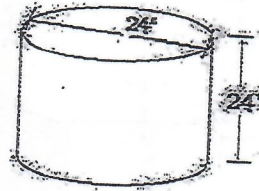
8. **NOTE:** No manufactured homes that pre-date the June 14, 1976 HUD CODE may be placed or relocated in unincorporated Franklin County -whether in a MH Park or on Private Property --*Per Planning & Zoning Regulations -- For More Information Call: 636-583-6369.*

Mobile Home: Piers, Runners, Cross Runners, and Slab Specifications

PIER SPECIFICATIONS



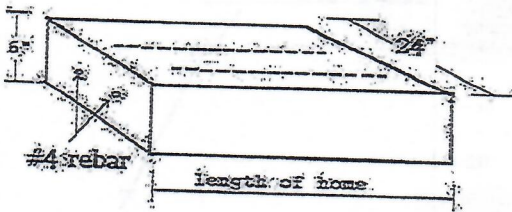
24" x 24" x 24" Minimum Piers



Round piers 24" diameter x 24" deep are allowed

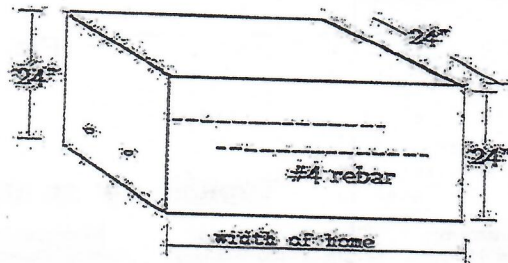
All perimeter blocking must also be at least 24" deep when using piers.

RUNNER SPECIFICATIONS



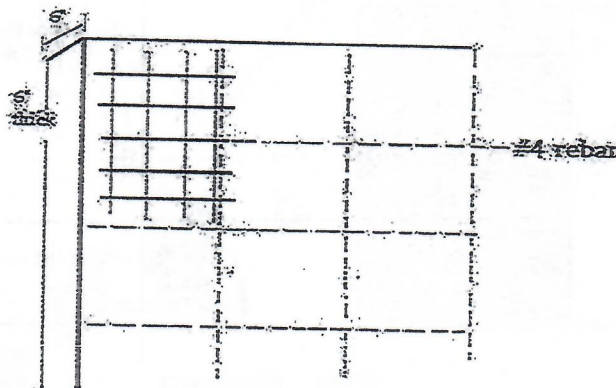
24" x 6" thick minimum with 2 rows #4 rebar continuous

CROSS RUNNER SPECIFICATIONS



24" x 24" thick minimum with 2 rows #4 rebar continuous

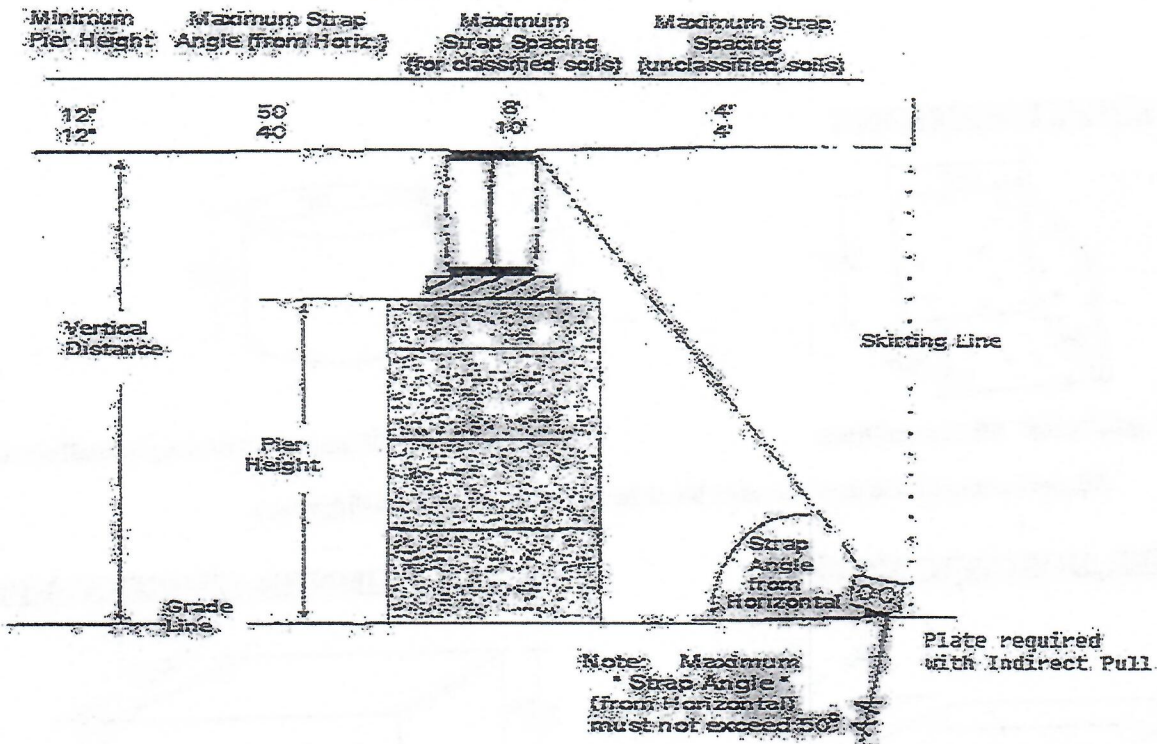
SLAB / PAD SPECIFICATIONS



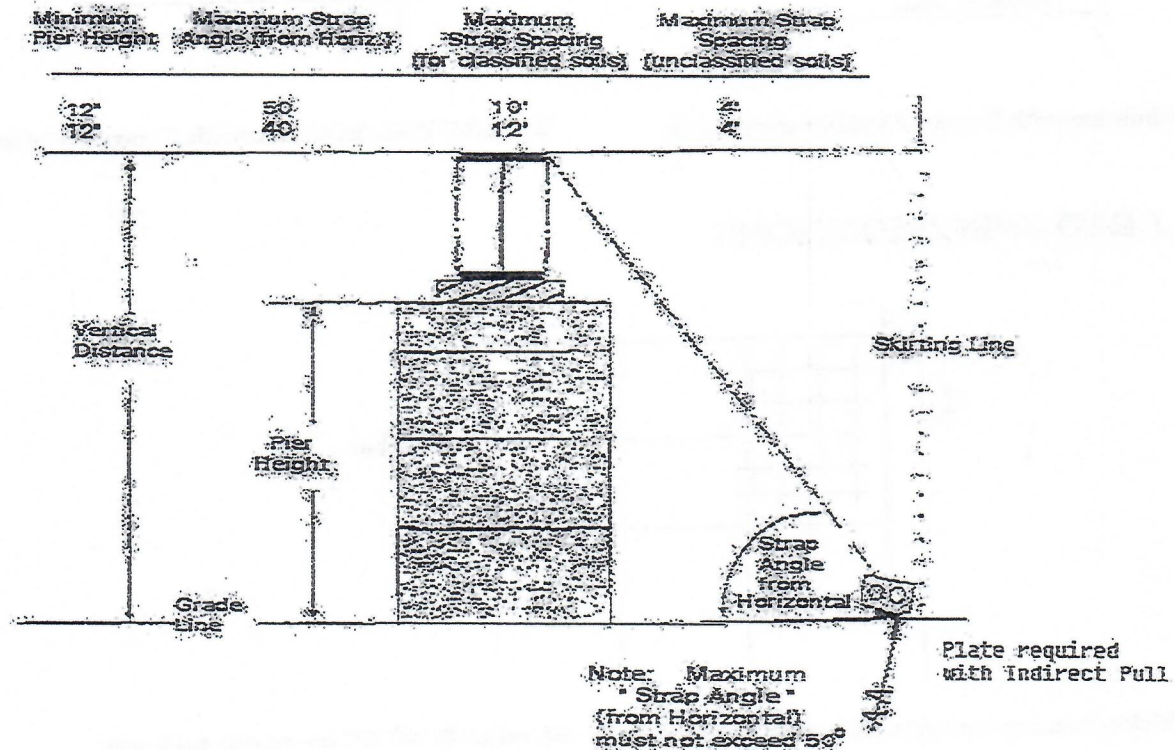
6" thick minimum concrete slab with wire mesh or #4 rebar @ 24" OC on center each way

Diagonal Tie Down Strap Spacing For Single Section and Multi-Section Homes

Typical 12' Wide



Typical 14' to 16' Wide

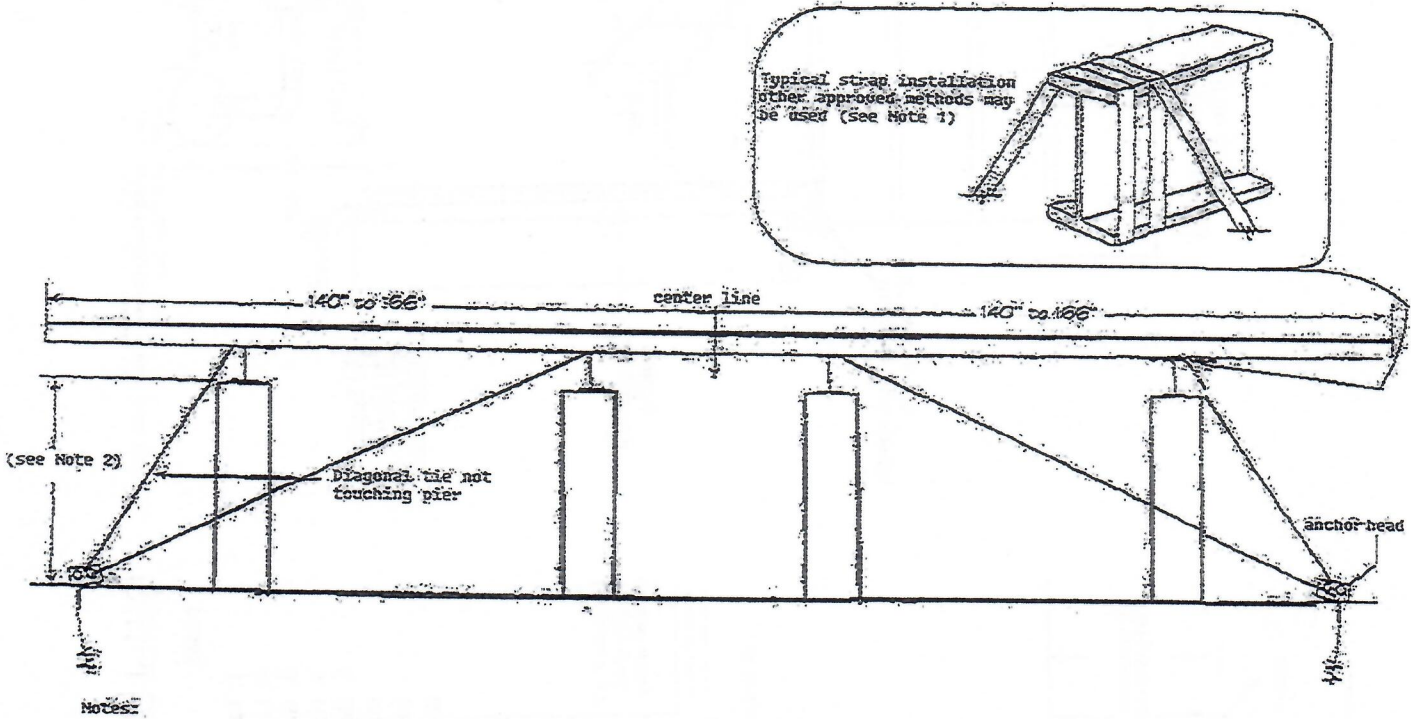


Classified soil is soil that has been evaluated through the use of a standard torque probe, or other approved method to determine anchor holding capacity. Each anchor location must be probed to confirm ground anchor models to be installed are consistent with soil classification.

Unclassified soil is soil that has not been evaluated to determine anchor holding capacity. At a minimum, a 30" double helix anchor with a 12" stabilizing plate shall be used in unclassified soils.

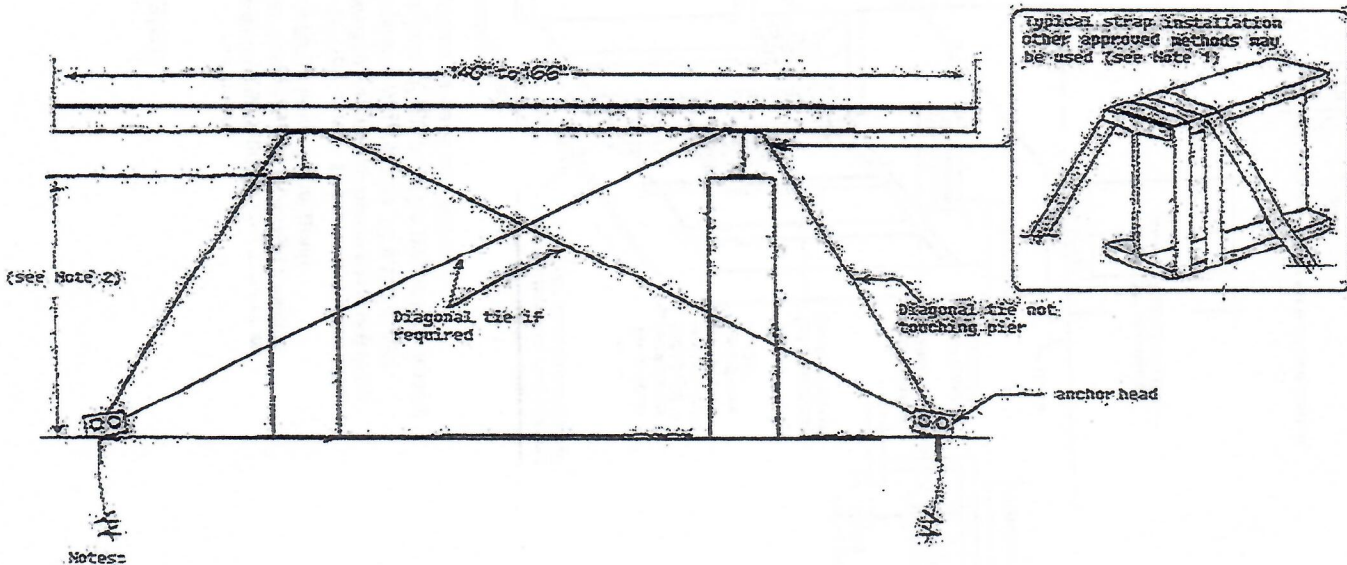
Anchor must be installed just inside the skirting line or as close to the skirting line as possible.

Strapping System for Multi-Section Homes - (example)



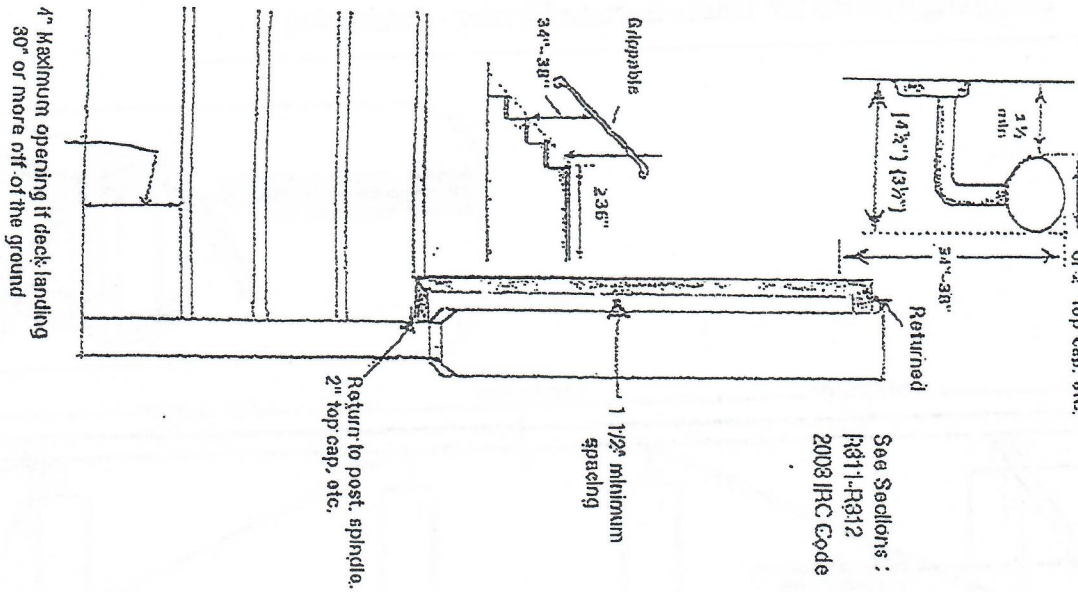
1. Inset drawing shows typical strap installation. All anchors, devices, and tiedown straps to be rated for 3150 lbs. working load (4725 lbs. overload capacity), in classified soils.
2. Pier height is measured from the top of the ground to the top of the I-Beam. Pier heights exceeding 88" must have piers and tiedowns designed by a Professional Engineer. Minimum pier height is 12".
3. Cross-ties also require uplift tie down.

Strapping System for Single Section Homes (example)



1. Inset drawing shows typical strap installation. All anchors, devices, and tiedown straps to be rated for 3150 lbs. working load (4725 lbs. overload capacity), in classified soils.
2. Pier height is measured from the top of the ground to the top of the I-Beam. Pier heights exceeding 88" must have piers and tiedowns designed by a Professional Engineer. Minimum pier height is 12".
3. Cross-ties also require uplift tie down.

Ends shall return to wall, post, spindle, or 2" top cap, etc.

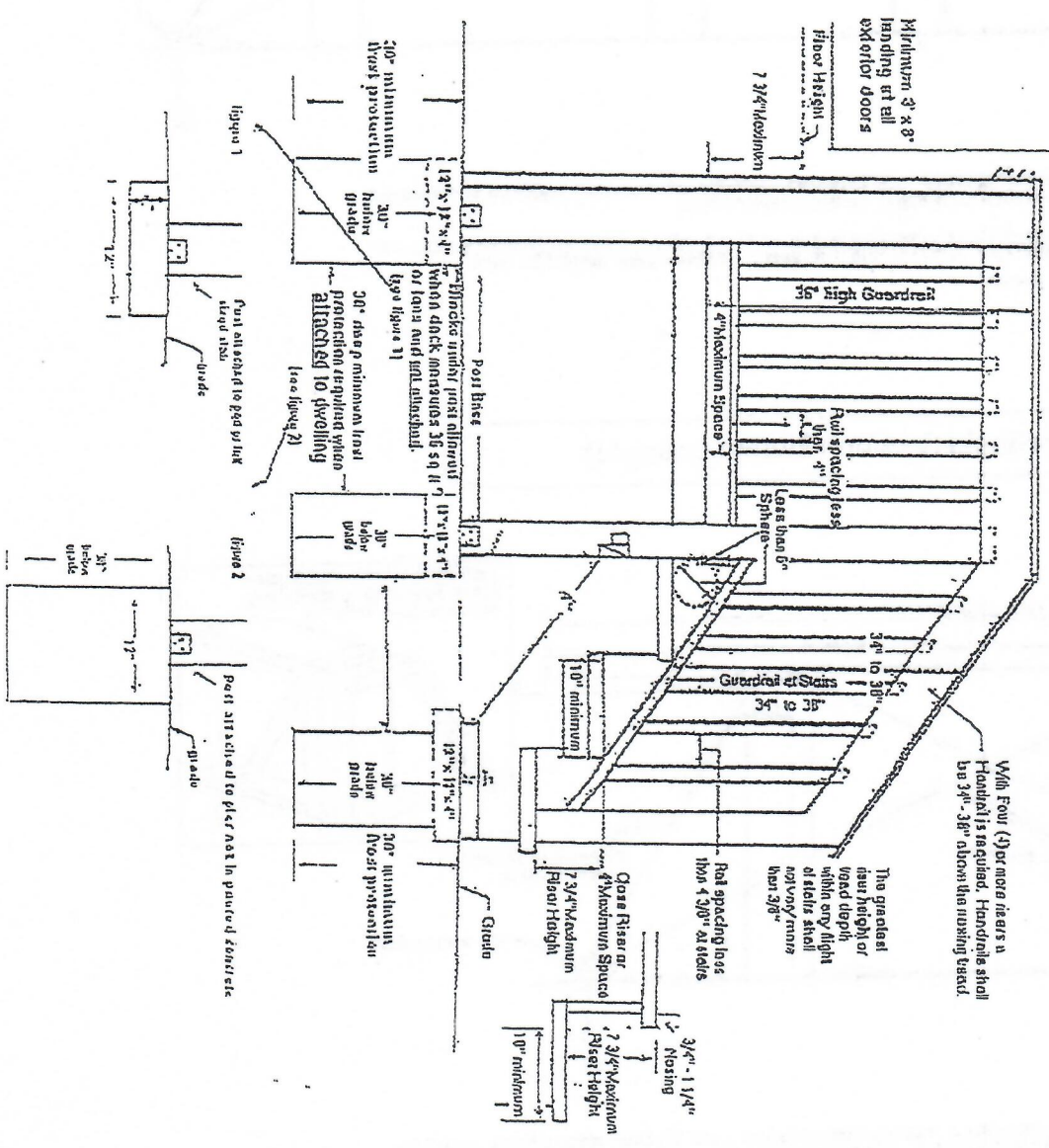


See Sections:
R411-R412
2008 IRC Code

Typical Deck Landing and Stair Detail

Notes:

1. Landing or floor is required on each side of exterior doors.
2. Landing size at least same width as door or stair it serves x 66" in length minimum.
3. Guardrail not required when Deck or Landing is 30" or less off final grade.
4. Handrail not required on stairs with fewer than 4 risers.
5. Decks 86 sq ft or smaller not supported by a dwelling (ie: mobile home on blocks) do not require footings. (posts) that extend below the frost line, but, require 12"x12"x4" thick minimum concrete or masonry pad under each post. Posts must be pinned to each pad or anchored to a 4" thick slab at least same dimensions as deck and stairway.



REVIEWED
BY TSO DATE 8-15-12
ACCEPTED REJECTED

Franklin County Building Department
Manufactured Home Inspection Checklist
PIERS/PAD/RUNNERS

As per IRC - AE

Permit # _____

Permittee: _____

_____ Existing _____ New _____ Piers _____ Runners _____ Cross-Runners _____ Pad

GO NO GO

- _____ 1. Pier blocking located within 2' of each end and not more than 8' apart thereafter or per manufacturer's specs.
- _____ 2. Piers blocking over 36" high & all corner blocking over 24" high must be min. of 16" x 16" (double blocking).
- _____ 3. Perimeter blocking (required on each side of wall, openings greater than 48" or per manufacturer's specs & below frost if home is resting on piers).
- _____ 4. Marriage wall blocking on doublewide homes (if applicable).
- _____ 5. Door blocking as required. (MFR Spec.)
- _____ 6. Solid cap blocks on pier blocking (must be of equal number as pier).
- _____ 7. Hardwood shims on each pier (1" total thickness max. & up to 2" of hardwood plates).
- _____ 8. Oliver or Vector tie down system properly installed.
- _____ 9. Oliver or Vector frame tie down (if applicable)
- _____ 10. Anchors within 2' of each end and 8' apart thereafter.
- _____ 11. Anchors installed to head in line of pull or with stabilizer plates.
- _____ 12. Tie-downs at 40- 50 degree angle.
- _____ 13. Cross - ties require uplift tie down (if applicable).
- _____ 14. Anchor straps in contact with all 4 corners of beam and off top of beam.
- _____ 15. Over-the-top straps anchored (if applicable)(AE-604).
- _____ 16. Auger type anchors (no cross-driven anchors unless grouted in solid rock)(AE-604).
- _____ 17. Sewer support straps (every 4')(Table 22605.1) (Metal straps on PVC ok).
- _____ 18. Approved piping material, joints and connections for sewer (P-3002.3 & P-3003).
- _____ 19. Heat crossover properly installed and strapped (doublewide) (M-1601.3).
- _____ 20. Home hooked to approved septic system (with working aerator if applicable) or to central sewer (R506.3).
- _____ 21. Wiring from home to disconnect (panel must be isolated and 4th wire run in same raceway)(E3306.7).
- _____ 22. Disconnect located no closer than 5' nor further than 30' from home in MH Park (550.32(A)) meters must be identified.
- _____ 23. Disconnect located no closer than 5'(may exceed 30' rule on private lot but must be visible from home it serves) if multiple services on 1 lot, meters must be identified.
- _____ 24. Service conductors in rigid conduit under home and properly strapped (E3702)-(NEC 352.30(B)).
- _____ 25. Burial depth for service (24" min. for direct burial and 18" min. if in conduit)(E-Table 3703.1).
- _____ 26. Approved ground rod at disconnect (1/2 x 8' min); Or equivalent (E3508.2).
- _____ 27. Bonding screw in disconnect (E3509.4).
- _____ 28. Oxide inhibitor on alum. conductors (E3306.8).
- _____ 29. Mounting height of meter & disconnect (36" - 66" for meter & 24" - 78" for disconnect)(UE REG 550-32(F)).
- _____ 30. Bushing or terminal fitting on all connectors as required (E3703.8).
- _____ 31. Conduit extending a min. of 12" below ground where service conductors emerge from ground (Table E3703.1).
- _____ 32. Service entrance conductors and ground wire properly sized (E3503.1).
- _____ 33. Disconnect at A.C. & conductors in conduit (if applicable)(Chapter 14 IRC).
- _____ 34. Landing - Deck pier inspection (if applicable)
- _____ 35. Stair, landing & handrails at each doorway (R311 - R31)
- _____ 36. Stair & landing properly secured per requirements (Chapter 3 of IRC 2003).
- _____ 37. Dryer vent to outside of home (M-1501.1).
- _____ 38. A.C. condensate to approved location (M-1411.3).
- _____ 39. Proper grading and slope away from site (AE502.5).

***** All items on the above list must pass before ELECTRIC SERVICE will be APPROVED!**

[Note: The above list may not cover all aspects of this inspection and is subject to change and/or error correction. Please call (636) 583-6384 for re-inspection.]

Inspection Date: _____

By: _____

Reinspection Date: _____

By: _____

BLDGFORM 508(4/03)

Manufactured Home on Foundation or Crawlspace

Typical Footing/Foundation Section

Scale: NOT TO SCALE

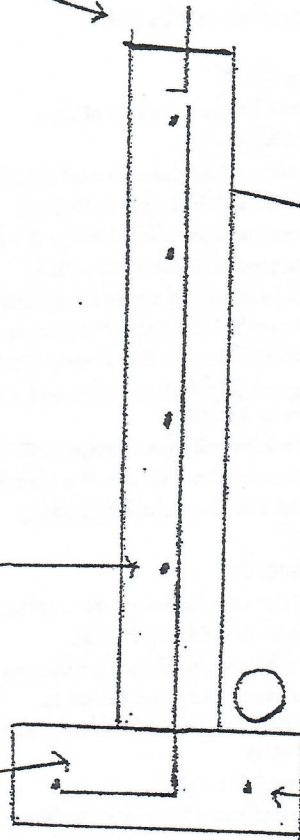
½" X 10" with 7" into concrete minimum
Anchor Bolts spaced as per code
and 2 Bolts per sill board.

WALLS LESS THAN 4 FEET
Vertical #4 bars 48" O.C.
Horizontal #4 bars 24" O.C.
MINIMUM

WALLS 4 FEET - 9 FEET
#4 Bars @ 2'
cntrs each way.
Minimum 5 Rows Horizontal
in 8' to 9' Pour

8" L-shaped hook
May be "Floated In"

2 - #4 bars continuous
thru footing minimum



Finish Grade

Bituminous Coating
below grade.

Remove all ties prior to
application of Bituminous
Coating, surface prep per
coating manufacturer.

Tied in Place
3" from bottom of footing.

ALL RODS MUST BE TIED IN PLACE

Reinforced Concrete and Masonry Foundation Walls

Maximum Wall Height	Minimum Vertical/Horizontal Reinforcement Size & Spacing for 8", 10", and 12" Walls in All Soil Classes
4 Ft.	Vertical #4 @ 4 ft. on Center Horizontal #4 @ 2ft. On Center
8 Ft.	Vertical #4 @ 2 ft. on Center Horizontal #4 @ 2ft. On Center
9 Ft.	Vertical #4 @ 2ft. on Center Horizontal #4 @ 2ft. On Center
Over 9 Ft.	PROFESSIONAL DESIGN REQUIRED

Note: Reinforcement shall be grade 40. Vertical rebar shall extend to within 6" from top of foundation.

Foundation Drainage

Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable spaces, or usable spaces, located below grade. Drainage tile, gravel or crushed stone drains, perforated pipe or other approved systems or materials shall be installed at or below the area to be protected and shall be discharged by gravity or mechanical means into an approved drainage system.

Foundation Damp Proofing

Foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be damp proofed from the top of the footing to the finished grade.

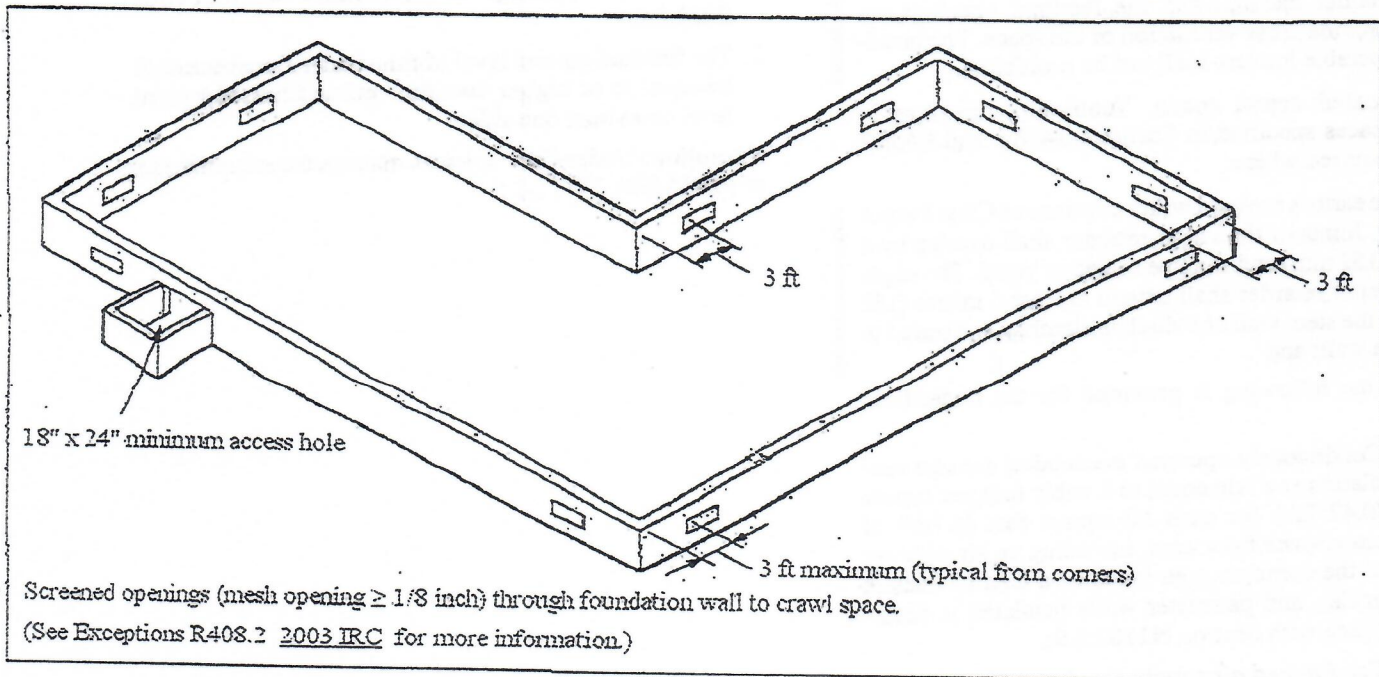
Crawl Space

The under floor space between the bottom of the floor joist and the earth under any building (except space occupied by a basement or cellar) shall be provided with ventilation openings.

Franklin County requires a 6 mil vapor barrier with granular fill and cover (R408.1.1 amendments)

Access

A minimum access opening of 18 inches by 24 inches shall be provided to the under floor space. (R408.3)



Crawlspace Ventilation

SECTION R408 UNDER-FLOOR SPACE

R408.1 Ventilation. The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a *basement*) shall have ventilation openings through foundation walls or exterior walls. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m²) for each 150 square feet (14 m²) of under-floor space area, unless the ground surface is covered by a Class 1 vapor retarder material. When a Class 1 vapor retarder material is used, the minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m²) for each 1,500 square feet (140 m²) of under-floor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building.

R408.2 Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m²) for each 150 square feet (14 m²) of under-floor area. One ventilation opening shall be within 3 feet (915 mm) of each corner of the building. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed 1/4 inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grill or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm) thick.

Exception: The total area of ventilation openings shall be permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with an *approved* Class I vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.

R408.3 Unvented crawl space. Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where:

1. Exposed earth is covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall; and
2. One of the following is provided for the under-floor space:
 - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.9;
 - 2.2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.9;

- 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

R408.4 Access. Access shall be provided to all under-floor spaces. Access openings through the floor shall be a minimum of 18 inches by 24 inches (457 mm by 610 mm). Openings through a perimeter wall shall be not less than 16 inches by 24 inches (407 mm by 610 mm). When any portion of the through-wall access is below *grade*, an areaway not less than 16 inches by 24 inches (407 mm by 610 mm) shall be provided. The bottom of the areaway shall be below the threshold of the access opening. Through wall access openings shall not be located under a door to the residence. See Section M1305.1.4 for access requirements where mechanical *equipment* is located under floors.

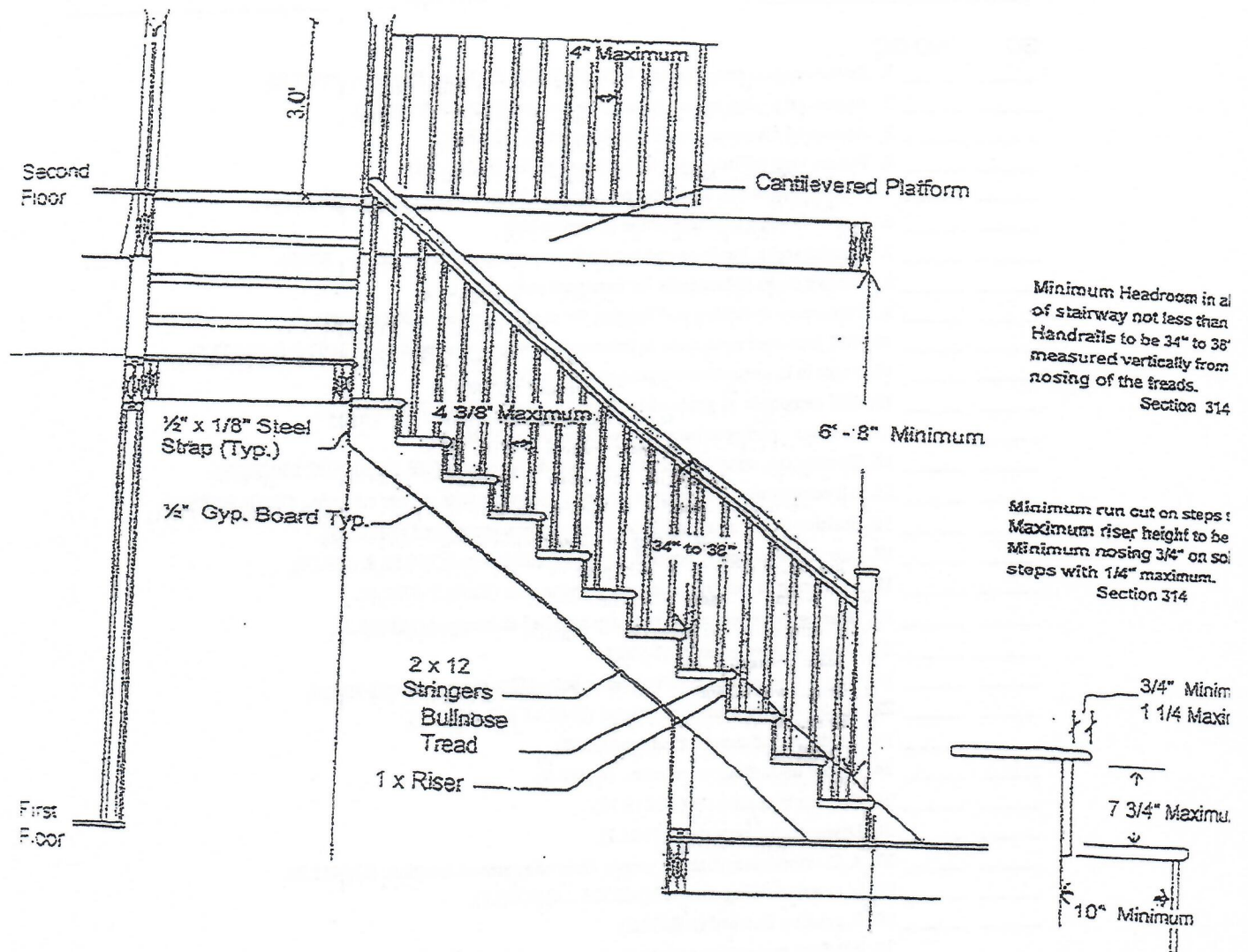
R408.5 Removal of debris. The under-floor *grade* shall be cleaned of all vegetation and organic material. All wood forms used for placing concrete shall be removed before a building is occupied or used for any purpose. All construction materials shall be removed before a building is occupied or used for any purpose.

R408.6 Finished grade. The finished *grade* of under-floor surface may be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6 inches (152 mm) of the finished floor at the building perimeter or where there is evidence that the surface water does not readily drain from the building site, the *grade* in the under-floor space shall be as high as the outside finished *grade*, unless an *approved* drainage system is provided.

R408.7 Flood resistance. For buildings located in areas prone to flooding as established in Table R301.2(1):

1. Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section R322.2.2.
2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

Exception: Under-floor spaces that meet the requirements of FEMA/FIA TB 11-1.



EXAMPLE ONLY
STAIR DETAIL FOR RESIDENTIAL 2009 IRC CODE

Franklin County Building Department
Manufactured Home Inspection Checklist
FOUNDATION / CRAWLSPACE / BASEMENT

Permit # _____

Permittee: _____

GO NO GO

- | | | |
|-------|-------|--|
| _____ | _____ | 1. Sewer support straps (every 4')(Table P2605.1) (Metal Straps on PVC Ok). |
| _____ | _____ | 2. Approved piping materials and connections (P3002.3 & P3003). |
| _____ | _____ | 3. Approved cleanouts on all plumbing risers (P3005.2). |
| _____ | _____ | 4. Proper vent off basement bath (if applicable) (P3101.2.1) |
| _____ | _____ | 5. Smoke detector in basement connected to home's smoke detector (R313). |
| _____ | _____ | 6. Deck - landing pier inspection (if applicable) |
| _____ | _____ | 7. Correct stairs, landings and handrails on exterior of home (R311 - R312). |
| _____ | _____ | 8. Correct stairs & handrails for basement stairs (R311.5) |
| _____ | _____ | 9. Three-way switching and lighting for basement stairs (R303.6)(3803.3). |
| _____ | _____ | 10. GFI protected receptacle in basement/crawlspace as required (E3802.4 & E3802.5). |
| _____ | _____ | 11. Light in basement/crawlspace as required (E3803.4). |
| _____ | _____ | 12. GFI receptacle at grade on walkout basement (E3801.7 & E3802.3). |
| _____ | _____ | 13. Exterior lighting at basement walkout door (E3803.3). |
| _____ | _____ | 14. Correct mounting height of meterbase & disconnect (UE REG)(NEC 550.32(5)). |
| _____ | _____ | 15. All conductors in conduit or approved SE cable with proper strapping (Table E3702.1) |
| _____ | _____ | 16. Bushing or terminal fitting on all connectors as required (E3703.8). |
| _____ | _____ | 17. Sub panels properly bonded, grounded and isolated (250.52 & 408.20). |
| _____ | _____ | 18. All wiring in conduit unless on wood trusses (Table E-3701.4). |
| _____ | _____ | 19. Heating crossover pipes properly installed & strapped (M1601.3). |
| _____ | _____ | 20. Beam pockets grouted (R-502.9). |
| _____ | _____ | 21. Beams welded and post welded or bolted (Per manufacturer's specs). |
| _____ | _____ | 22. Beams & post primed or painted (R-407.2 & R-603.2.3). |
| _____ | _____ | 23. Certificate of termite treatment (R320). |
| _____ | _____ | 24. Proper underfloor ventilation (R-408.2). |
| _____ | _____ | 25. Gas test if applicable (G2415.16). |
| _____ | _____ | 26. Dryer vented outside (M1501.1). |
| _____ | _____ | 27. A.C. condensate drain to proper drain or approved location. (M1411.3). |
| _____ | _____ | 28. Is exterior siding finished (AE 305.5.4)(R703.1). |
| _____ | _____ | 29. Is grading finished (AE502.5). |
| _____ | _____ | 30. All final sewer connections made, motors installed and wiring completed (R306.3). |
| _____ | _____ | 31. Air conditioner and proper disconnect installed (Chapter 14). |
| _____ | _____ | 32. Home properly secured to foundation per manufacturer's specs. |

HOME MUST BE PLACED ON CRAWLSPACE OR BASEMENT, ANCHORED, AND HOOKED TO AN (APPROVED) SEPTIC SYSTEM, AND ALL ITEMS ON ELECTRIC SERVICE APPROVED FOR TEMPORARY OR PERMANENT ELECTRIC SERVICE.

[Note: The above list may not cover all aspects of this inspection and is subject to change and or error correction. Please call (636) 583-6384 for re-inspection.]

COMMENTS: _____

Inspection Date: _____

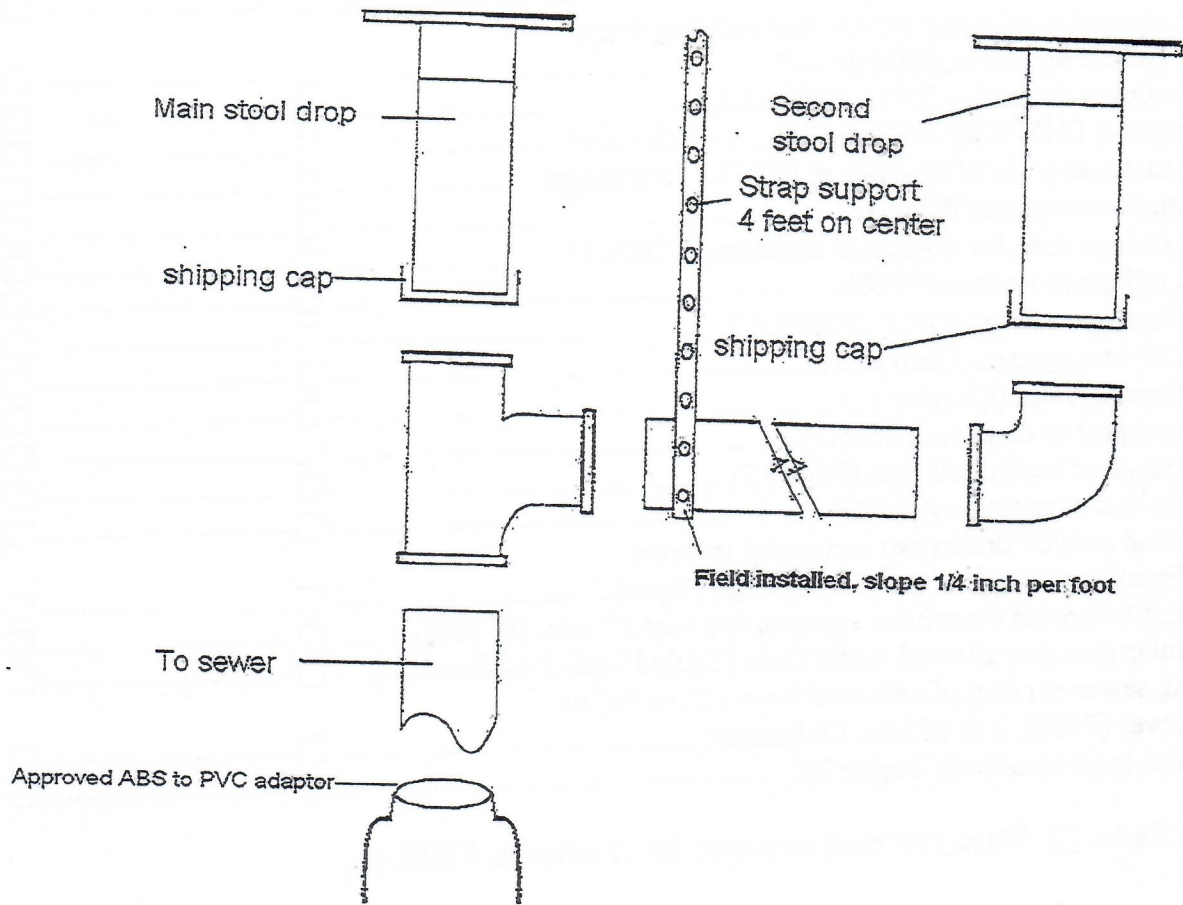
By: _____

Reinspection Date: _____

By: _____

BLDGFORM 933a(1-05)

Drain-pipe support methods



Drain-pipe slope and connections

UNDERFLOOR PLUMBING
INSPECTION CHECKLIST

PERMIT # _____

PERMITTEE: _____

<u>BUILDING DRAINAGE SYSTEM</u>	<u>Approved</u>	<u>Disapproved</u>
Proper sleeve location and size (P2603.5)	<input type="checkbox"/>	<input type="checkbox"/>
Proper separation of water service and building drain (where applicable)(P2905.4.2)	<input type="checkbox"/>	<input type="checkbox"/>
Main building drain size (DFU, P3005.4.2)	<input type="checkbox"/>	<input type="checkbox"/>
Pipe material (ASTM)(P-3002 & P3002.1 Ordinance)	<input type="checkbox"/>	<input type="checkbox"/>
Fitting material (ASTM)(P-3002 & P3002.3 Ordinance)	<input type="checkbox"/>	<input type="checkbox"/>
Joints and connections(P3003)	<input type="checkbox"/>	<input type="checkbox"/>
Proper fittings used for change of directions(P3005.1)	<input type="checkbox"/>	<input type="checkbox"/>
Design of branch systems(P3005)	<input type="checkbox"/>	<input type="checkbox"/>
Size of branch systems (DFU) (P3005.4.2)	<input type="checkbox"/>	<input type="checkbox"/>
Design of vent system (Chapter 31)	<input type="checkbox"/>	<input type="checkbox"/>
Size of vent system (Chapter 31)	<input type="checkbox"/>	<input type="checkbox"/>
Proper support to all pipe (P2605.1)	<input type="checkbox"/>	<input type="checkbox"/>
Proper slope of horizontal pipe (P3005.3)	<input type="checkbox"/>	<input type="checkbox"/>
Sump pit and connections(P3007)	<input type="checkbox"/>	<input type="checkbox"/>
Garage and outside drains not connected to sewer (Franklin County Ordinance: Sewage Tanks)	<input type="checkbox"/>	<input type="checkbox"/>
Basement bathroom must have separate dry vent 2" min. (P3108)	<input type="checkbox"/>	<input type="checkbox"/>
No cellular core pvc allowed under floor (Table P3002.2 Ordinance)	<input type="checkbox"/>	<input type="checkbox"/>
Building sewer at point of exit must have 12" to 24" of cover (P3001.2 & 305.6.1 Ordinance)	<input type="checkbox"/>	<input type="checkbox"/>
Approved traps installed(Chapter 32)	<input type="checkbox"/>	<input type="checkbox"/>

System Test - Water (10' head on plastic for 15 minutes, P2503.4)

Air (copper 50# min P2503.7)(plastic 5# P2503.5.1 for 15 minutes
.....

[Note: The above list may not cover all aspects of this inspection. Checklists are only a guideline for inspection purposes; subject to change and/or error.]

The above items must be corrected:

Please call (636)583-6384 for a re-inspection when correction(s) have been completed.

Inspection Date _____ By _____

Re-Inspection Date _____ By _____

Franklin County Building Department

Septic System Checklist

Permit #: _____

Name on Permit: _____

	<u>OK</u>	<u>NO/GO</u>
1 Alternative System plan from Registered Design Professional.	_____	_____
2 Check that field is located in Perc/Soil Test Area.	_____	_____
3 Property Lines marked (if close to septic area).	_____	_____
4 Distance between well head and tank at least 100 feet.	_____	_____
5 Distance between tank & basement 15 ft minimum.	_____	_____
6 Distance between well head and drainfield at least 100 feet.	_____	_____
7 Distance from property lines to drainfield (10 ft) / lagoon (75ft).	_____	_____
8 Check setbacks from springs, cisterns, creeks, lakes	_____	_____
9 Shallow drainfield has sufficient wooded area for absorption.	_____	_____
10 Tank properly sized to number of bedrooms.	_____	_____
11 Access to tank above finished grade (risers).	_____	_____
12 Schedule 40 PVC past the over digs of the tank.	_____	_____
13 Cleanout every 100 feet from house to tank.	_____	_____
14 Aerator motor, pumps, alarms operating.	_____	_____
15 Aerator motor, pumps, & alarms wired UF (Underground Feeder).	_____	_____
16 Distribution/Splitter Box level, properly installed & adjusted w/access above grade.	_____	_____
17 Supply trenches properly sloped.	_____	_____
18 Trenches installed with the contour of slope.	_____	_____
19 Pipes proper size & connected securely	_____	_____
20 Bottom of lateral trench excavation to proper depth & level.	_____	_____
21 Length of Runs, depth and width as specified.	_____	_____
22 Clean gravel above & below perforated pipe and straw.	_____	_____
23 Landblocks at the end of each lateral (bentonite if necessary)	_____	_____
24 Type of rock and depth of soil where applicable.	_____	_____
25 Curtain drain /diversion terrace minimum 10 feet above drainfield area.	_____	_____
26 Curtain drain depth as specified on design.	_____	_____
27 Lagoons - fence, gate, signs.	_____	_____
28 Lagoons - splash block & overflow pipe installed.	_____	_____
29 Lagoons - trees removed within 50' of waters edge.	_____	_____
30 Lagoons - 100' from residence it serves (min) & 200' from nearest existing residence.	_____	_____
31 System installed according to approved plans on site.	_____	_____
32 Condition of Soil (circle one)	wet	moist dry
33 Weather Conditions (circle one)	wet	moist dry
34 Other: _____		

Sewer Installed by: _____

Tank Size: _____ Length & Type of Drainfield: _____ LF of _____

The above items must be corrected: _____

Please call (636) 583-6384 for a re-inspection when corrections have been completed.

Inspection Date : _____ By _____ Re-Inspection Date : _____ By _____

ELECTRICAL SERVICE INSPECTION CHECKLIST

2009 IRC /2008 NEC

PERMIT # _____ PERMITTEE: _____

			<u>Approved</u>	<u>Disapproved</u>
AMEREN REG.	1.	Meter base mounting height - AMEREN guideline Overhead - 3' min to 5'6" max center of glass Underground - 3' min to 5'6" max center of glass CT cabinet 1'6" min to 6' max bottom of cabinet.....	<input type="checkbox"/>	<input type="checkbox"/>
AMEREN REG.	2.	Expansion coupling on utility conduit under base (300.5 (J)FPN)	<input type="checkbox"/>	<input type="checkbox"/>
AMEREN REG.	3.	Conduit strapped within 3' of box and at approved distance for type of conduit (NEC table 352.30(A)).....	<input type="checkbox"/>	<input type="checkbox"/>
AMEREN REG.	4.	Long sweep 90 on utility line at meter base - AMEREN REG.....	<input type="checkbox"/>	<input type="checkbox"/>
AMEREN REG.	5.	Long sweep 90 or flex at pole or transformer - AMEREN REG.....	<input type="checkbox"/>	<input type="checkbox"/>
	6.	Proper trench depth 24" cover for direct burial cable 18" for SCH 40 PVC conduit (Table E3803.1).....	<input type="checkbox"/>	<input type="checkbox"/>
E3306.8	7.	Oxidation paste on aluminum conductors (Table E3406.8)	<input type="checkbox"/>	<input type="checkbox"/>
E3605.1	8.	Proper sizing of conductors for service size (Table E3603.1)	<input type="checkbox"/>	<input type="checkbox"/>
	9.	Bushings required on all conduit and cable connections(300.4 (F) 352.46)	<input type="checkbox"/>	<input type="checkbox"/>
E3406.7	10.	All wires including ground wire in same cable raceway or conduit as conductors if over 6'	<input type="checkbox"/>	<input type="checkbox"/>
E3407.1	11.	Neutral wire identified or marked with white tape.....	<input type="checkbox"/>	<input type="checkbox"/>
	12.	Ground wire ran without a splice and terminated in approved terminals (250.64C)	<input type="checkbox"/>	<input type="checkbox"/>
	13.	Proper size ground wire on service (Table 3603.1)	<input type="checkbox"/>	<input type="checkbox"/>
E3405	14.	Proper work space at panel with 6' 6" working height	<input type="checkbox"/>	<input type="checkbox"/>
E405.3	15.	Clean work space above panel - no other mechanicals run in work space	<input type="checkbox"/>	<input type="checkbox"/>
	16.	All residential panels and subpanels required to have main disconnect breaker (E3706.3 Franklin County Ordinance).....	<input type="checkbox"/>	<input type="checkbox"/>
E3608	17.	Service bonded to all available and approved grounding electrodes. Type of electrodes used	<input type="checkbox"/>	<input type="checkbox"/>
	18.	For sub panel is ground and neutral bar isolated (408.40).....	<input type="checkbox"/>	<input type="checkbox"/>
E3609.2	19.	Bonding screw installed properly.....	<input type="checkbox"/>	<input type="checkbox"/>
E601.6.2	20.	All disconnecting means for service in same location.....	<input type="checkbox"/>	<input type="checkbox"/>
E4001.3	21.	Main breaker not upside down.....	<input type="checkbox"/>	<input type="checkbox"/>
	22.	Outside disconnect required if panel is located more than 5' from point of entrance (E3601.6.2 Franklin County Ordinance)	<input type="checkbox"/>	<input type="checkbox"/>
E4002.9	23.	GFI receptacle installed for construction use. In use cover installed where applicable.....	<input type="checkbox"/>	<input type="checkbox"/>
E3404.8	24.	All boxes and cabinets fastened properly.....	<input type="checkbox"/>	<input type="checkbox"/>
225.33	25.	No more than 6 disconnecting means without a main disconnect (non-residential)	<input type="checkbox"/>	<input type="checkbox"/>
E4001.6	26.	Max height of breakers 6' 7"	<input type="checkbox"/>	<input type="checkbox"/>
E3906.4	27.	All unused opening closed properly.....	<input type="checkbox"/>	<input type="checkbox"/>
E3406.9	28.	Conductors not cut down or altered	<input type="checkbox"/>	<input type="checkbox"/>
E3601.3	29.	Conductors supplying add'l bldg shall not run through interior of another bldg.....	<input type="checkbox"/>	<input type="checkbox"/>
E3610.3	30.	If EMT used to encase grounding electrode proper bonding is required	<input type="checkbox"/>	<input type="checkbox"/>

OVERHEAD SERVICE

A.	Proper height to drip loop (E3604.3, NEC 230-24, E3604.2.2, 230-38 AMEREN REG D-23)	<input type="checkbox"/>	<input type="checkbox"/>
B.	2" or larger rigid pipe if wire supported on pipe (AMEREN/FC ORD.)	<input type="checkbox"/>	<input type="checkbox"/>
C.	Proper guying if mast extends over 42" above roof (AMEREN REG).....	<input type="checkbox"/>	<input type="checkbox"/>
D.	Clearance from doors and windows (E3604).....	<input type="checkbox"/>	<input type="checkbox"/>
E.	Proper drip loop (AMEREN /Franklin County Ordinance.)	<input type="checkbox"/>	<input type="checkbox"/>

UNDERGROUND SERVICE

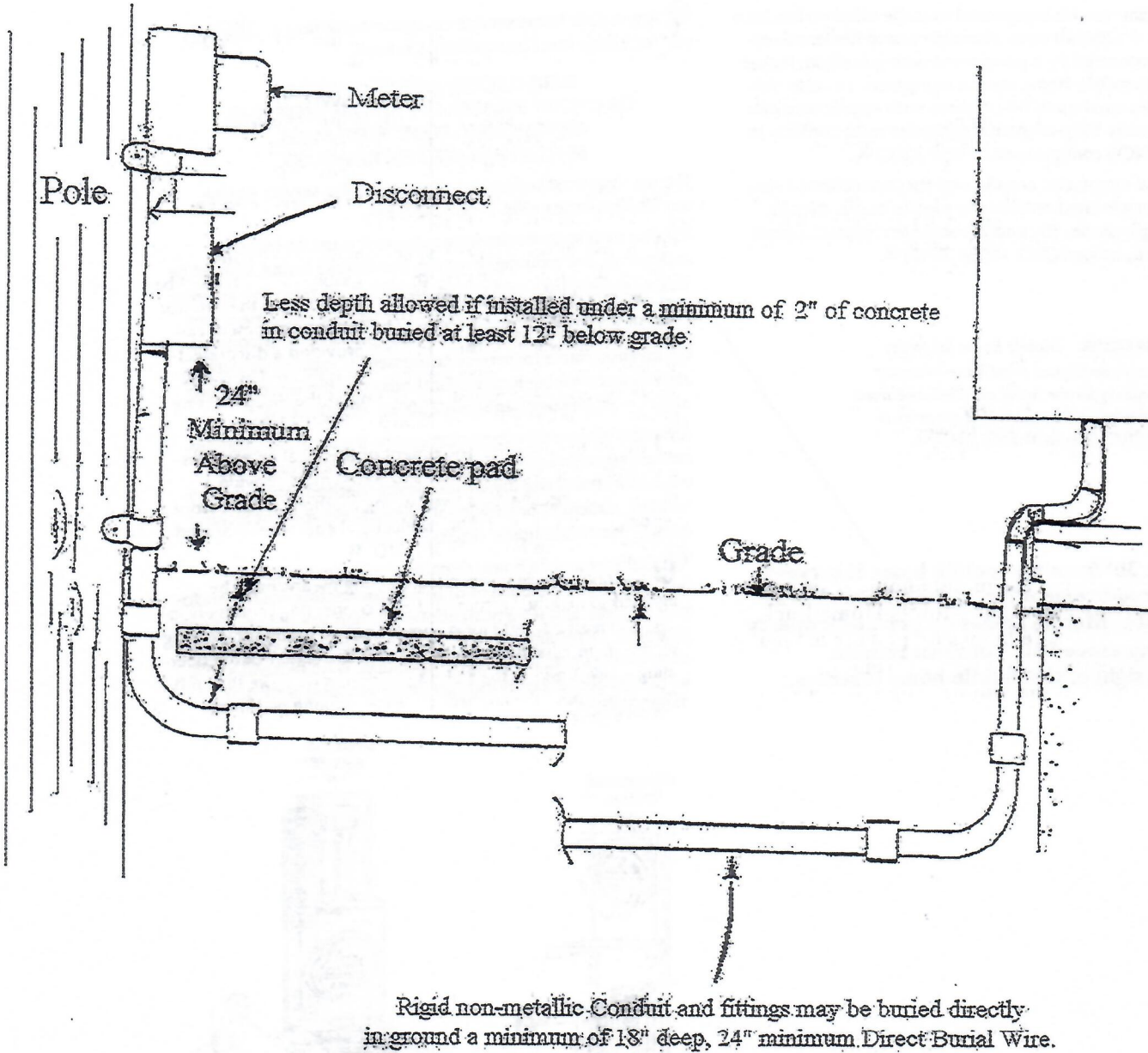
UE	Proper sizing of conduit. UE 2 1/2 for 200 amp under 200'; 3" over 200' & for 320 - 400 amp	<input type="checkbox"/>	<input type="checkbox"/>
	Customer owned; pipe size as per Table E3904.6(10) 100 amp 1 1/4"; 200 amp 2"; 400 amp 3"	<input type="checkbox"/>	<input type="checkbox"/>

[Note: The above list may not cover all aspects of this inspection. Checklists are only a guideline for inspection purposes; subject to change and/or error.]
Please call (636)583-6384 for a re-inspection when correction(s) have been completed.

Inspection Date: _____ By _____

Re-Inspection Date: _____ By _____

Electric Service for Manufactured Homes



Disconnect required in Mobile Home Parks within 30' of the Mobile Home.

**The disconnect for Mobile Homes placed on private property may exceed 30', but, must be in sight of the Home.

Mobile Home Electric Service Equipment Requirements

Ⓐ Mobile home service equipment must be rated no less than 100 amperes at 120/240 volts. A mobile home feeder assembly must be connected by a permanent wiring method. Power outlets used as mobile home service equipment can also contain receptacles rated up to 50 amperes with appropriate over-current protection. Fifty-ampere receptacles must conform to Figure 550.10(C)'s configuration. >> 550.32(C) <<

Ⓑ Additional receptacles are allowed for connection of electrical equipment located outside the mobile home. All such 125-volt, single-phase, 15- and 20-ampere receptacles must be protected by a listed GFCI. >> 550.32(E) <<

CAUTION Mobile home lot feeder circuit conductors must have adequate capacity for the loads supplied and must be rated no less than 100 amperes at 120/240 volts. >> 550.31(B) <<

Note: 30' from the mobile home it serves is a requirement for Mobile Home Parks only. Mobile homes on private property may exceed 30' but must remain in sight of the mobile home it serves.

Ⓒ Any mobile home service equipment utilizing a 125/250-volt receptacle must be marked as follows:

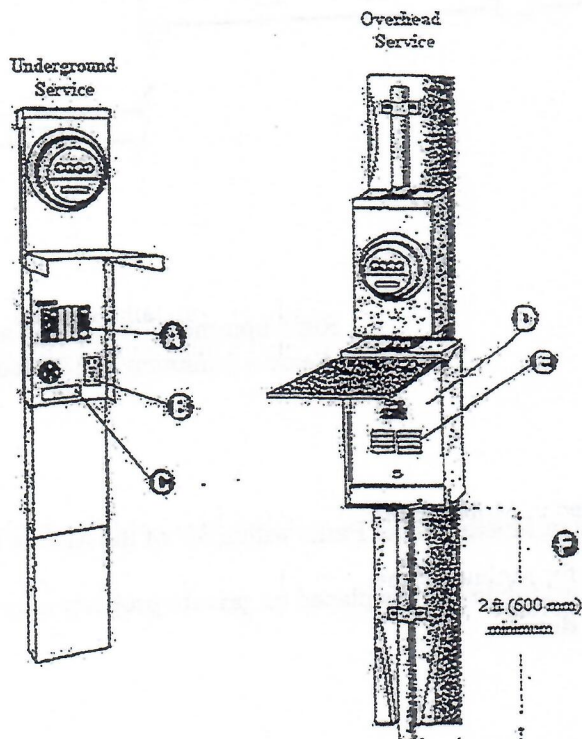
TURN DISCONNECTING SWITCH
OR CIRCUIT BREAKER OFF BEFORE INSERTING
OR REMOVING PLUG. PLUG MUST
BE FULLY INSERTED OR REMOVED.

The marking must be located adjacent to the service equipment's receptacle outlet. >> 550.32(G) <<

Ⓓ The mobile home service equipment must be located adjacent to, not mounted in or on, the mobile home. It must be located in sight from and within 30 ft (9.0 m) from the exterior wall of the mobile home it serves. The service equipment can be located elsewhere on the premises, provided a disconnecting means suitable for service equipment is located as stated above for service equipment. Grounding at the disconnecting means must be compliant with 250.32. >> 550.32(A) <<

Ⓔ Mobile home service equipment or the local external disconnecting means permitted in 550.32(A) must provide a means for connecting (by a fixed wiring method) an accessory building, structure, or additional electrical equipment located outside the mobile home. >> 550.32(D) <<

Ⓕ Outdoor mobile home disconnecting means must be installed so that the bottom of the disconnecting means enclosure is at least 2 ft (600 mm) above finished grade (or working platform). Installation must ensure that the center of the operating handle's grip, in the highest position, is no more than 6 ft 7 in. (2.0 m) above the finished grade (or working platform). >> 550.32(F) <<



Electric Service Requirements with Example

Direct burial wire requires 24" of cover.

Pipe from disconnect to home requires 18" of cover.

Primary pipe from utility company to disconnect must meet NEC and utility regs.

Ground wire from disconnect to home must be in same conduit or trench as conductors.

Ⓔ Remove and discard bonding screws, straps, or buses in the distribution panelboard or in appliances >> 550.16(A)(1)<<

Ⓕ The grounded circuit conductor (neutral) must be insulated from the grounding conductors, from equipment enclosures, and other grounded parts. The grounded (neutral) circuit terminals in distribution panelboards, ranges, clothes dryers, counter-mounted cooking units, and wall-mounted ovens must be insulated from the equipment enclosure >> 550.16(A)(1)<<

Ⓖ In a mobile home, grounding of metal parts (both electrical and non-electrical) must be accomplished by connection to a distribution panelboard's grounding bus. The grounding bus must be grounded through the green-colored insulated conductor in the supply cord (or the feeder wiring) to the service ground in the service-entrance equipment, located adjacent to the mobile home >> 550.16<<

NOTE

Connections of ranges and clothes dryers with 120/240-volt, three-wire ratings must be made with (a) four-conductor cord and three-pole, four-wire, grounding-type plugs or (b) Type AC cable, or (c) conductors enclosed in flexible metal conduit >> 550.16(4) <<

Ⓒ Grounding terminals must be of the solderless type, listed as pressure-terminal connectors, and recognized for the wire size employed >> 550.16(C)(2)<<

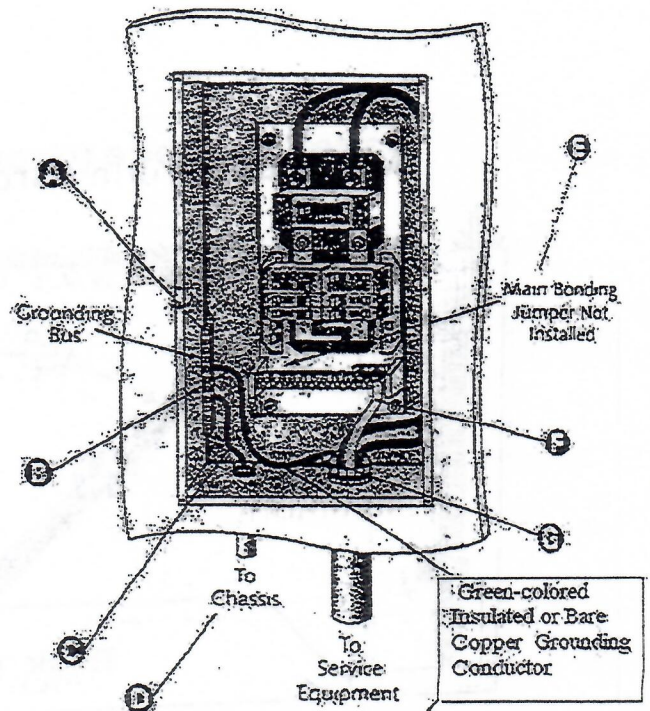
Ⓔ The supply cord or permanent feeder's green-colored insulated grounding wire must be connected to the grounding bus in the distribution panelboard or disconnecting means >> 550.16(B)(1)<<

Ⓒ The bonding conductor must be solid or stranded, insulated or bare, but must be 6 AWG copper minimum, or the equivalent. The bonding conductor routing must prevent physical damage exposure >> 550.16(C)(2)<<

Ⓓ All potentially energizable exposed, noncurrent-carrying metal parts must be effectively bonded to either the grounding terminal or the distribution panelboard's enclosure. A bonding conductor must be connected between the distribution panelboard and an accessible terminal on the chassis >> 550.16(C)(1)<<

CAUTION

Neither the mobile home's frame nor any appliance frame shall be connected to the grounded circuit conductor (neutral) in the mobile home >> 550.16<<



Ground wire from disconnect to home must be in same conduit or trench as conductors.

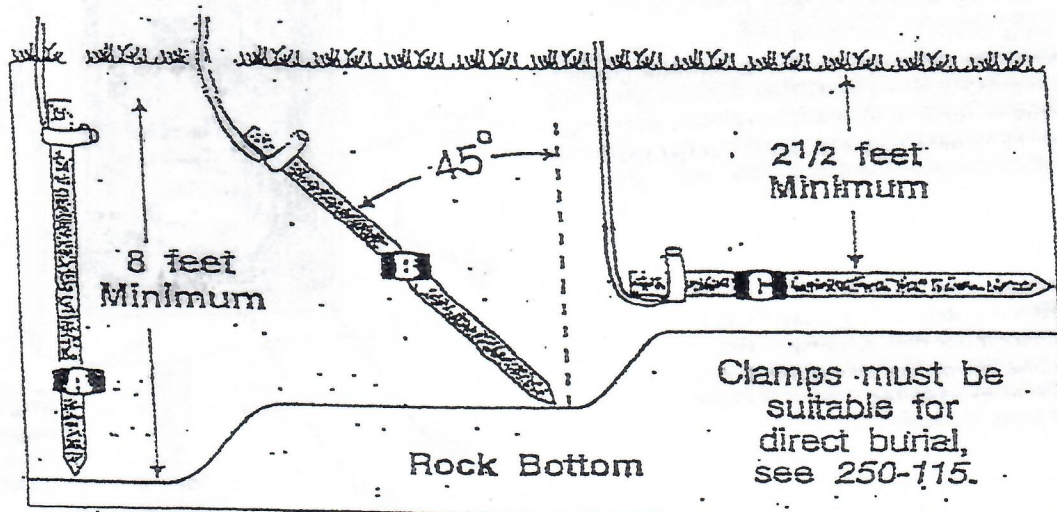
TABLE E3503.1
SERVICE CONDUCTOR AND GROUNDING ELECTRODE CONDUCTOR SIZING

CONDUCTOR TYPES AND SIZES—THHW, THW, THWN, USE, XHHW (Parallel sets of 1/0 and larger conductors are permitted in either a single raceway or in separate raceways)		ALLOWABLE AMPACITY	MINIMUM GROUNDING ELECTRODE CONDUCTOR SIZE ^a	
Copper (AWG)	Aluminum and copper-clad aluminum (AWG)	Maximum load (amps)	Copper (AWG)	Aluminum (AWG)
4	2	100	8 ^b	6 ^c
3	1	110	8 ^b	6 ^c
2	1/0	125	8 ^b	6 ^c
1	2/0	150	6 ^c	4
1/0	3/0	175	6 ^c	4
2/0	4/0 or two sets of 1/0	200	4 ^d	2 ^d
3/0	250 kcmil or two sets of 2/0	225	4 ^d	2 ^d
4/0 or two sets of 1/0	300 kcmil or two sets of 3/0	250	2 ^d	1/0 ^d
250 kcmil or two sets of 2/0	350 kcmil or two sets of 4/0	300	2 ^d	1/0 ^d
350 kcmil or two sets of 3/0	500 kcmil or two sets of 250 kcmil	350	2 ^d	1/0 ^d
400 kcmil or two sets of 4/0	600 kcmil or two sets of 300 kcmil	400	1/0 ^d	3/0 ^d

For SI: 1 inch = 25.4 mm.

- Where protected by a metal raceway, grounding electrode conductors shall be electrically bonded to the metal raceway at both ends.
- No. 8 grounding electrode conductors shall be protected with metal conduit or nonmetallic conduit.
- Where not protected, No. 6 grounding electrode conductors shall closely follow a structural surface for physical protection. The supports shall be spaced not more than 24 inches on center and shall be within 12 inches of any enclosure or termination.
- Where the sole grounding electrode system is a ground rod or pipe as covered in Section E3508.2, the grounding electrode conductor shall not be required to be larger than No. 6 copper or No. 4 aluminum. Where the sole grounding electrode system is the footing steel as covered in Section E3508.1.2, the grounding electrode conductor shall not be required to be larger than No. 4 copper conductor.

Made Electrode (Ground Rod) Installations

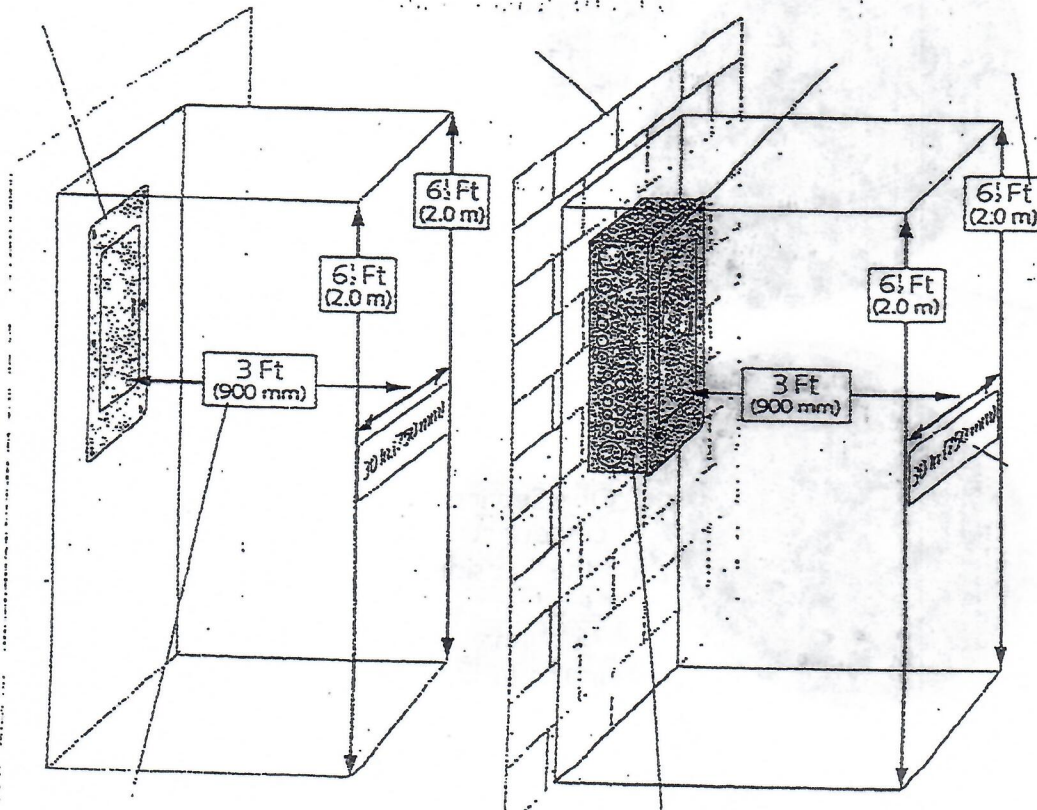
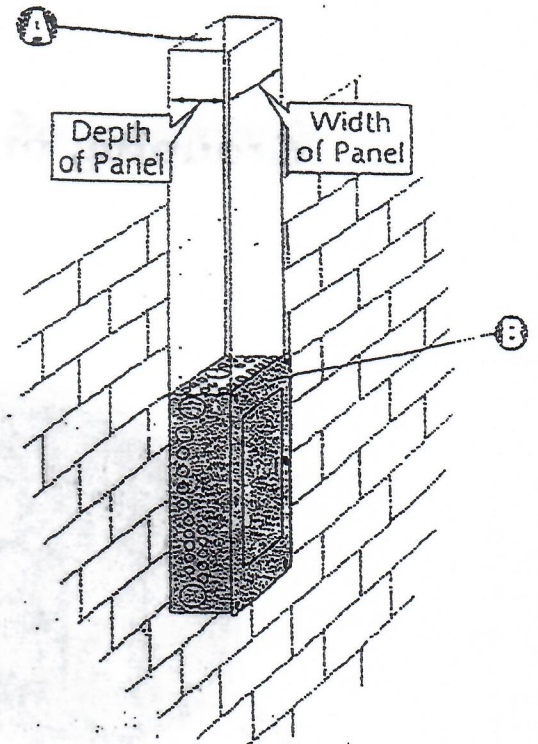


Clamps need to be visible at time the inspection is made:

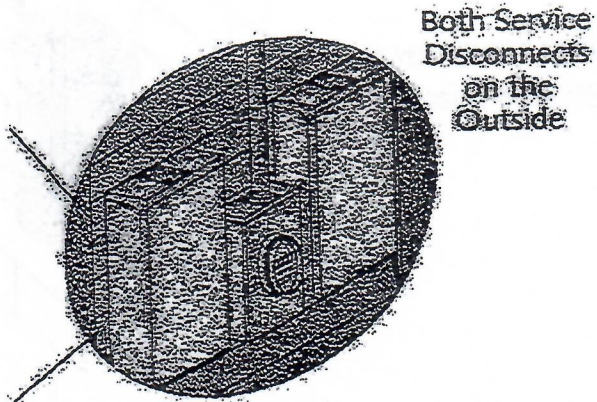
Dedicated Space

A The space equal to the width and depth of the equipment and extending from the floor to a height of 6 ft (1.8 m) above the equipment or to the structural ceiling, whichever is lower, must be dedicated to the electrical system. A dropped, suspended, or similar ceiling, that does not strengthen the building is not considered a structural ceiling

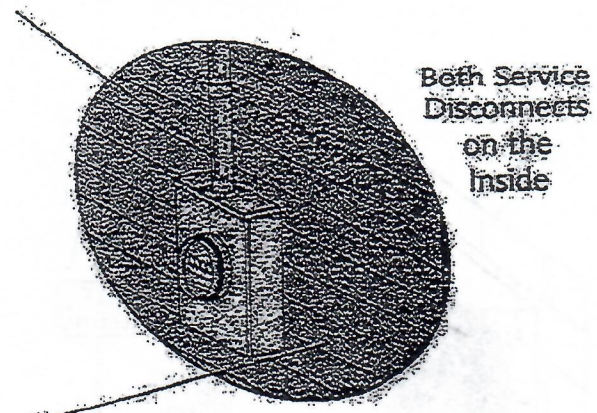
B All switchboards, panelboards, distribution boards, and motor control centers must be located in dedicated spaces and must be protected from damage



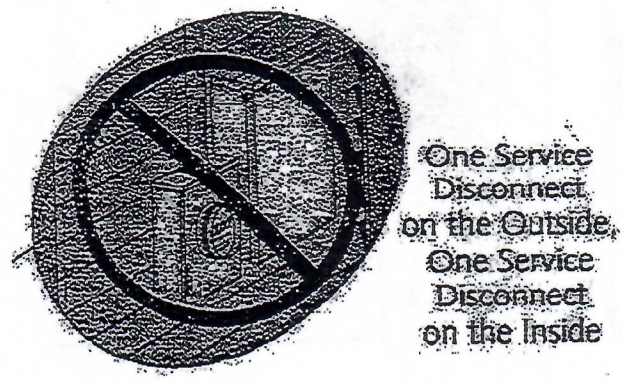
Grouping of Service Disconnects



Both Service Disconnects on the Outside

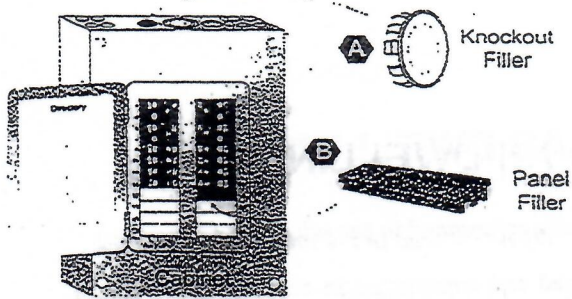


Both Service Disconnects on the Inside



One Service Disconnect on the Outside, One Service Disconnect on the Inside

Unused Openings in Enclosures
Section 373-4



Unused openings in enclosures must be closed with a fitting that gives protection equivalent to that of the wall of the enclosure. Also see 110-12(a) and 370-18.

Fig. 32-2 Unused Openings in Enclosures Must Be Properly Closed or Sealed

373-4 Unused Openings

Unused openings in enclosures must be closed with a protection fitting equivalent to that of the wall of the enclosure [110-12(a) and 370-18], Fig. 32-2.

373-5 Cables

(c) Cables. Where cable is used, each cable shall be secured to the cabinet or cutout box.

Exception. Cables are not required to be secured if the cables enter a nonflexible raceway not less than 18 inches, or more than 10 feet that enters the top of a surface-mounted enclosure, if, Fig. 32-3:

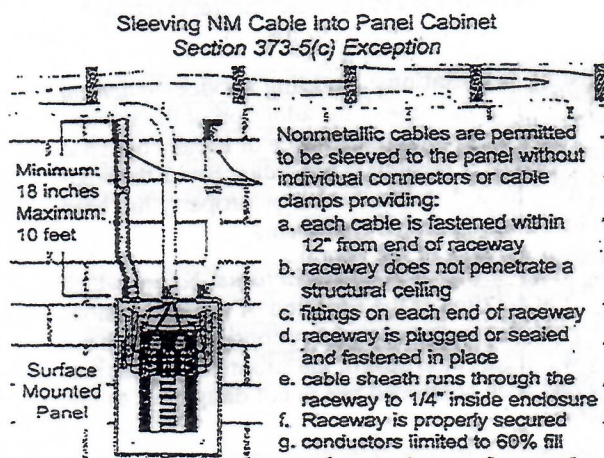


Fig. 32-3 Sleeving NM Cable into Panel Cabinet

The following are the conditions of the Exception

(a) Each cable is fastened within 12 inches from the end of the raceway

(b) The raceway does not penetrate a structural ceiling

(c) Fittings are provided on each end of the raceway to protect the cables from abrasion

(d) The raceway is sealed or plugged and fastened in place

(e) Nonmetallic-sheathed cable extends at least 1/4 inch into the panelboard

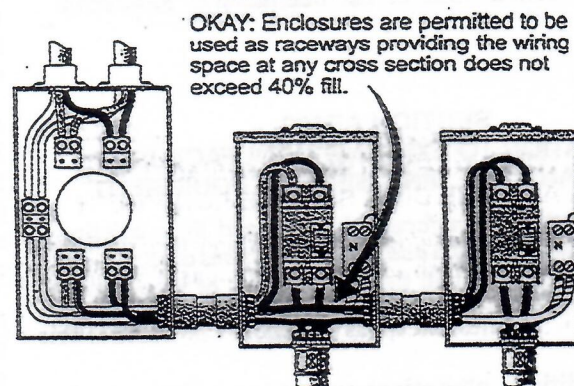
(f) Raceway is properly secured

(g) Conductor fill is limited to 60 percent of the raceway cross-sectional area in accordance with Table 1 of Chapter 9.

373-8 Used for Raceway and Splices

Cabinet, cutout boxes, and meter socket enclosures can be used for conductors feeding through where the conductors do not fill the wiring space at any cross-section to more than 40 percent of the cross-sectional area of the space, Fig. 32-4.

Cabinet and Cutout Box as Raceway
Section 373-8



Note: Section 230-7 prohibits other conductors in the same raceway with service conductors. It does not prohibit service conductors with other conductors in cabinets and cutout boxes.

Fig. 32-4 Cabinets and Cutout Boxes Can Be Used as a Raceway

APPENDIX E

MANUFACTURED HOUSING USED AS DWELLINGS

(The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.)

SECTION AE101 SCOPE

AE101.1 General. These provisions shall be applicable only to a *manufactured home* used as a single *dwelling unit* installed on privately owned (nonrental) lots and shall apply to the following:

1. Construction, *alteration* and repair of any foundation system which is necessary to provide for the installation of a *manufactured home* unit.
2. Construction, installation, *addition*, *alteration*, repair or maintenance of the building service *equipment* which is necessary for connecting *manufactured homes* to water, fuel, or power supplies and sewage systems.
3. *Alterations*, *additions* or repairs to existing *manufactured homes*. The construction, *alteration*, moving, demolition, repair and use of accessory buildings and structures and their building service *equipment* shall comply with the requirements of the codes adopted by this *jurisdiction*.

These provisions shall not be applicable to the design and construction of *manufactured homes* and shall not be deemed to authorize either modifications or *additions* to *manufactured homes* where otherwise prohibited.

Exception: In addition to these provisions, new and replacement *manufactured homes* to be located in flood hazard areas as established in Table R301.2(1) of the *International Residential Code* shall meet the applicable requirements of Section R322 of the *International Residential Code*.

SECTION AE102 APPLICATION TO EXISTING MANUFACTURED HOMES AND BUILDING SERVICE EQUIPMENT

AE102.1 General. *Manufactured homes* and their building service *equipment* to which *additions*, *alterations* or repairs are made shall comply with all the requirements of these provisions for new facilities, except as specifically provided in this section.

AE102.2 Additions, alterations or repairs. *Additions* made to a *manufactured home* shall conform to one of the following:

1. Be certified under the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. Section 5401, et seq.).
2. Be designed and constructed to conform with the applicable provisions of the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. Section 5401, et seq.).

3. Be designed and constructed in conformance with the code adopted by this *jurisdiction*.

Additions shall be structurally separated from the *manufactured home*.

Exception: A structural separation need not be provided when structural calculations are provided to justify the omission of such separation.

Alterations or repairs may be made to any *manufactured home* or to its building service *equipment* without requiring the existing *manufactured home* or its building service *equipment* to comply with all the requirements of these provisions, provided the *alteration* or repair conforms to that required for new construction, and provided further that no hazard to life, health or safety will be created by such *additions*, *alterations* or repairs.

Alterations or repairs to an existing *manufactured home* which are nonstructural and do not adversely affect any structural member or any part of the building or structure having required fire protection may be made with materials equivalent to those of which the *manufactured home* structure is constructed, subject to approval by the *building official*.

Exception: The installation or replacement of glass shall be required for new installations.

Minor *additions*, *alterations* and repairs to existing building service *equipment* installations may be made in accordance with the codes in effect at the time the original installation was made subject to approval of the *building official*, and provided such *additions*, *alterations* and repairs will not cause the existing building service *equipment* to become unsafe, insanitary or overloaded.

AE102.3 Existing installations. Building service *equipment* lawfully in existence at the time of the adoption of the applicable codes may have their use, maintenance or repair continued if the use, maintenance or repair is in accordance with the original design and no hazard to life, health or property has been created by such building service *equipment*.

AE102.4 Existing occupancy. *Manufactured homes* which are in existence at the time of the adoption of these provisions may have their existing use or occupancy continued if such use or occupancy was legal at the time of the adoption of these provisions, provided such continued use is not dangerous to life, health and safety.

The use or occupancy of any existing *manufactured home* shall not be changed unless evidence satisfactory to the *building official* is provided to show compliance with all applicable provisions of the codes adopted by this *jurisdiction*. Upon any change in use or occupancy, the *manufactured home* shall cease to be classified as such within the intent of these provisions.

AE102.5 Maintenance. All *manufactured homes* and their building service *equipment*, existing and new, and all parts thereof shall be maintained in a safe and sanitary condition. All device or safeguards which are required by applicable codes or by the *Manufactured Home Standards* shall be maintained in conformance with the code or standard under which it was installed. The owner or the owner's designated agent shall be responsible for the maintenance of *manufactured homes*, accessory buildings, structures and their building service *equipment*. To determine compliance with this subsection, the *building official* may cause any *manufactured home*, accessory building or structure to be reinspected.

AE102.6 Relocation. *Manufactured homes* which are to be relocated within this *jurisdiction* shall comply with these provisions.

SECTION AE201 DEFINITIONS

AE201.1 General. For the purpose of these provisions, certain abbreviations, terms, phrases, words and their derivatives shall be construed as defined or specified herein.

ACCESSORY BUILDING. Any building or structure, or portion thereto, located on the same property as a *manufactured home* which does not qualify as a *manufactured home* as defined herein.

BUILDING SERVICE EQUIPMENT. Refers to the plumbing, mechanical and electrical *equipment* including piping, wiring, fixtures and other accessories which provide sanitation, lighting, heating ventilation, cooling, fire protection and facilities essential for the habitable occupancy of a *manufactured home* or accessory building or structure for its designated use and occupancy.

MANUFACTURED HOME. A structure transportable in one or more sections which, in the traveling mode, is 8 body feet (2438 body mm) or more in width or 40 body feet (12 192 body mm) or more in length or, when erected on site, is 320 or more square feet (30 m²), and which is built on a permanent chassis and designed to be used as a *dwelling* with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning and electrical systems contained therein; except that such term shall include any structure which meets all the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the secretary (HUD) and complies with the standards established under this title.

For mobile homes built prior to June 15, 1976, a *label* certifying compliance to the Standard for Mobile Homes, NFPA 501, ANSI 119.1, in effect at the time of manufacture is required. For the purpose of these provisions, a mobile home shall be considered a *manufactured home*.

MANUFACTURED HOME INSTALLATION. Construction which is required for the installation of a *manufactured home*, including the construction of the foundation system, required structural connections thereto and the installation of on-site water, gas, electrical and sewer systems and connec-

tions thereto which are necessary for the normal operation of the *manufactured home*.

MANUFACTURED HOME STANDARDS. The *Manufactured Home Construction and Safety Standards* as promulgated by the United States Department of Housing and Urban Development.

PRIVATELY OWNED (NONRENTAL) LOT. A parcel of real estate outside of a *manufactured home* rental community (park) where the land and the *manufactured home* to be installed thereon are held in common ownership.

SECTION AE301 PERMITS

AE301.1 Initial installation. A *manufactured home* shall not be installed on a foundation system, reinstalled or altered without first obtaining a *permit* from the *building official*. A separate *permit* shall be required for each *manufactured home* installation. When *approved* by the *building official*, such *permit* may include accessory buildings and structures and their building service *equipment* when the accessory buildings or structures will be constructed in conjunction with the *manufactured home* installation.

AE301.2 Additions, alterations and repairs to a manufactured home. A *permit* shall be obtained to alter, remodel, repair or add accessory buildings or structures to a *manufactured home* subsequent to its initial installation. *Permit* issuance and fees therefor shall be in conformance with the codes applicable to the type of work involved.

An *addition* made to a *manufactured home* as defined in these provisions shall comply with these provisions.

AE301.3 Accessory buildings. Except as provided in Section AE301.1, *permits* shall be required for all accessory buildings and structures and their building service *equipment*. *Permit* issuance and fees therefor shall be in conformance with the codes applicable to the types of work involved.

AE301.4 Exempted work. A *permit* shall not be required for the types of work specifically exempted by the applicable codes. Exemption from the *permit* requirements of any of said codes shall not be deemed to grant authorization for any work to be done in violation of the provisions of said codes or any other laws or ordinances of this *jurisdiction*.

SECTION AE302 APPLICATION FOR PERMIT

AE302.1 Application. To obtain a *manufactured home* installation *permit*, the applicant shall first file an application in writing on a form furnished by the *building official* for that purpose. At the option of the *building official*, every such application shall:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.

3. Indicate the use or occupancy for which the proposed work is intended.
4. Be accompanied by plans, diagrams, computations and specifications and other data as required in Section AE302.2.
5. Be accompanied by a soil investigation when required by Section AE502.2.
6. State the valuation of any new building or structure or any *addition*, remodeling or *alteration* to an existing building.
7. Be signed by permittee, or permittee's authorized agent, who may be required to submit evidence to indicate such authority.
8. Give such other data and information as may be required by the *building official*.

AE302.2 Plans and specifications. Plans, engineering calculations, diagrams and other data as required by the *building official* shall be submitted in not less than two sets with each application for a *permit*. The *building official* may require plans, computations and specifications to be prepared and designed by an engineer or architect licensed by the state to practice as such.

Where no unusual site conditions exist, the *building official* may accept *approved* standard foundation plans and details in conjunction with the manufacturer's *approved* installation instructions without requiring the submittal of engineering calculations.

AE302.3 Information on plans and specifications. Plans and specifications shall be drawn to scale on substantial paper or cloth and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and shown in detail that it will conform to the provisions of these provisions and all relevant laws, ordinances, rules and regulations. The *building official* shall determine what information is required on plans and specifications to ensure compliance.

SECTION AE303 PERMITS ISSUANCE

AE303.1 Issuance. The application, plans and specifications and other data filed by an applicant for *permit* shall be reviewed by the *building official*. Such plans may be reviewed by other departments of this *jurisdiction* to verify compliance with any applicable laws under their *jurisdiction*. If the *building official* finds that the work described in an application for a *permit* and the plans, specifications and other data filed therewith conform to the requirements of these provisions and other data filed therewith conform to the requirements of these provisions and other pertinent codes, laws and ordinances, and that the fees specified in Section AE304 have been paid, the *building official* shall issue a *permit* therefor to the applicant.

When the *building official* issues the *permit* where plans are required, the *building official* shall endorse in writing or stamp the plans and specifications *APPROVED*. Such *approved* plans and specifications shall not be changed, modified or altered without authorization from the *building official*, and all work shall be done in accordance with the *approved* plans.

AE303.2 Retention of plans. One set of *approved* plans and specifications shall be returned to the applicant and shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress. One set of *approved* plans, specification and computations shall be retained by the *building official* until final approval of the work.

AE303.3 Validity of permit. The issuance of a *permit* or approval of plans and specifications shall not be construed to be a *permit* for, or an approval of, any violation of any of the provisions of these provisions or other pertinent codes of any other ordinance of the *jurisdiction*. No *permit* presuming to give authority to violate or cancel these provisions shall be valid.

The issuance of a *permit* based on plans, specifications and other data shall not prevent the *building official* from thereafter requiring the correction of errors in said plans, specifications and other data, or from preventing building operations being carried on thereunder when in violation of these provisions or of any other ordinances of this *jurisdiction*.

AE303.4 Expiration. Every *permit* issued by the *building official* under these provisions shall expire by limitation and become null and void if the work authorized by such *permit* is not commenced within 180 days from the date of such *permit*, or if the work authorized by such *permit* is suspended or abandoned at any time after the work is commenced for a period of 180 days. Before such work can be recommenced, a new *permit* shall be first obtained, and the fee therefor shall be one-half the amount required for a new *permit* for such work, provided no changes have been made or will be made in the original plans and specifications for such work, and provided further that such suspension or abandonment has not exceeded one year. In order to renew action on a *permit* after expiration, the permittee shall pay a new full *permit* fee.

Any permittee holding an unexpired *permit* may apply for an extension of the time within which work may commence under that *permit* when the permittee is unable to commence work within the time required by this section for good and satisfactory reasons. The *building official* may extend the time for action by the permittee for a period not exceeding 180 days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. No *permit* shall be extended more than once.

AE303.5 Suspension or revocation. The *building official* may, in writing, suspend or revoke a *permit* issued under these provisions whenever the *permit* is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or any of these provisions.

SECTION AE304 FEES

AE304.1 Permit fees. The fee for each *manufactured home* installation *permit* shall be established by the *building official*.

When *permit* fees are to be based on the value or valuation of the work to be performed, the determination of value or valuation under these provisions shall be made by the *building official*. The value to be used shall be the total value of all work required for the *manufactured home* installation plus the total

value of all work required for the construction of accessory buildings and structures for which the *permit* is issued as well as all finish work, painting, roofing, electrical, plumbing, heating, air conditioning, elevators, fire-extinguishing systems and any other permanent *equipment* which is a part of the accessory building or structure. The value of the *manufactured home* itself shall not be included.

AE304.2 Plan review fees. When a plan or other data are required to be submitted by Section AE302.2, a plan review fee shall be paid at the time of submitting plans and specifications for review. Said plan review fee shall be as established by the *building official*. Where plans are incomplete or changed so as to require additional plan review, an additional plan review fee shall be charged at a rate as established by the *building official*.

AE304.3 Other provisions.

AE304.3.1 Expiration of plan review. Applications for which no *permit* is issued within 180 days following the date of application shall expire by limitation, and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the *building official*. The *building official* may extend the time for action by the applicant for a period not exceeding 180 days upon request by the applicant showing that circumstances beyond the control of the applicant have prevented action from being taken. No application shall be extended more than once. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee.

AE304.3.2 Investigation fees: work without a permit.

AE304.3.2.1 Investigation. Whenever any work for which a *permit* is required by these provisions has been commenced without first obtaining said *permit*, a special investigation shall be made before a *permit* may be issued for such work.

AE304.3.2.2 Fee. An investigation fee, in addition to the *permit* fee, shall be collected whether or not a *permit* is then or subsequently issued. The investigation fee shall be equal to the amount of the *permit* fee required. The minimum investigation fee shall be the same as the minimum fee established by the *building official*. The payment of such investigation fee shall not exempt any person from compliance with all other provisions of either these provisions or other pertinent codes or from any penalty prescribed by law.

AE304.3.3 Fee refunds.

AE304.3.3.1 Permit fee erroneously paid or collected. The *building official* may authorize the refunding of any fee paid hereunder which was erroneously paid or collected.

AE304.3.3.2 Permit fee paid when no work done. The *building official* may authorize the refunding of not more than 80 percent of the *permit* fee paid when no work has been done under a *permit* issued in accordance with these provisions.

AE304.3.3.3 Plan review fee. The *building official* may authorize the refunding of not more than 80 percent of the plan review fee paid when an application for a *permit*

for which a plan review fee has been paid is withdrawn or canceled before any plan reviewing is done.

The *building official* shall not authorize the refunding of any fee paid except upon written application by the original permittee not later than 180 days after the date of the fee payment.

SECTION AE305 INSPECTIONS

AE305.1 General. All construction or work for which a *manufactured home* installation *permit* is required shall be subject to inspection by the *building official*, and certain types of construction shall have continuous inspection by special inspectors as specified in Section AE306. A survey of the *lot* may be required by the *building official* to verify that the structure is located in accordance with the *approved* plans.

It shall be the duty of the *permit* applicant to cause the work to be accessible and exposed for inspection purposes. Neither the *building official* nor this *jurisdiction* shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

AE305.2 Inspection requests. It shall be the duty of the person doing the work authorized by a *manufactured home* installation *permit* to notify the *building official* that such work is ready for inspection. The *building official* may require that every request for inspection be filed at least one working day before such inspection is desired. Such request may be in writing or by telephone at the option of the *building official*.

It shall be the duty of the person requesting any inspections required either by these provisions or other applicable codes to provide access to and means for proper inspection of such work.

AE305.3 Inspection record card. Work requiring a *manufactured home* installation *permit* shall not be commenced until the *permit* holder or the *permit* holder's agent shall have posted an inspection record card in a conspicuous place on the premises and in such position as to allow the *building official* conveniently to make the required entries thereon regarding inspection of the work. This card shall be maintained in such position by the *permit* holder until final approval has been issued by the *building official*.

AE305.4 Approval required. Work shall not be done on any part of the *manufactured home* installation beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. Such approval shall be given only after an inspection has been made of each successive step in the construction as indicated by each of the inspections required in Section AE305.5. There shall be a final inspection and approval of the *manufactured home* installation, including connections to its building service *equipment*, when completed and ready for occupancy or use.

AE305.5 Required inspections.

AE305.5.1 Structural inspections for the manufactured home installation. Reinforcing steel or structural framework of any part of any *manufactured home* foundation system shall not be covered or concealed without first obtaining the approval of the *building official*. The *building official*,

upon notification from the *permit* holder or the *permit* holder's agent, shall make the following inspections and shall either approve that portion of the construction as completed or shall notify the *permit* holder or the *permit* holder's agent wherein the same fails to comply with these provisions or other applicable codes:

1. Foundation inspection: To be made after excavations for footings are completed and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. All materials for the foundation shall be on the job, except where concrete from a central mixing plant (commonly termed "transit mixed") is to be used, the concrete materials need not be on the job. Where the foundation is to be constructed of *approved* treated wood, additional framing inspections as required by the building official may be required.
2. Concrete slab or under-floor inspection: To be made after all in-slab or underfloor building service *equipment*, conduit, piping accessories and other ancillary *equipment* items are in place but before any concrete is poured or the *manufactured home* is installed.
3. Anchorage inspection: To be made after the *manufactured home* has been installed and permanently anchored.

AE305.5.2 Structural inspections for accessory building and structures. Inspections for accessory buildings and structures shall be made as set forth in this code.

AE305.5.3 Building service equipment inspections. All building service *equipment* which is required as a part of a *manufactured home* installation, including accessory buildings and structures authorized by the same *permit*, shall be inspected by the building official. Building service *equipment* shall be inspected and tested as required by the applicable codes. Such inspections and testing shall be limited to site construction and shall not include building service *equipment* which is a part of the *manufactured home* itself. No portion of any building service *equipment* intended to be concealed by any permanent portion of the construction shall be concealed until inspected and *approved*. Building service *equipment* shall not be connected to the water, fuel or power supply or sewer system until authorized by the building official.

AE305.5.4 Final inspection. When finish grading and the *manufactured home* installation, including the installation of all required building service *equipment*, is completed and the *manufactured home* is ready for occupancy, a final inspection shall be made.

AE305.6 Other inspections. In addition to the called inspections specified above, the building official may make or require other inspections of any construction work to as certain compliance with these provisions or other codes and laws which are enforced by the code enforcement agency.

SECTION AE306 SPECIAL INSPECTIONS

AE306.1 General. In addition to the inspections required by Section AE305, the building official may require the owner to employ a special inspector during construction of specific types of work as described in this code.

SECTION AE307 UTILITY SERVICE

AE307.1 General. Utility service shall not be provided to any building service *equipment* which is regulated by these provisions or other applicable codes and for which a *manufactured home* installation *permit* is required by these provisions until *approved* by the building official.

SECTION AE401 OCCUPANCY CLASSIFICATION

AE401.1 Manufactured homes. A *manufactured home* shall be limited in use to use as a single *dwelling unit*.

AE401.2 Accessory buildings. Accessory buildings shall be classified as to occupancy by the building official as set forth in this code.

SECTION AE402 LOCATION ON PROPERTY

AE402.1 General. *Manufactured homes* and accessory buildings shall be located on the property in accordance with applicable codes and ordinances of this *jurisdiction*.

SECTION AE501 DESIGN

AE501.1 General. A *manufactured home* shall be installed on a foundation system which is designed and constructed to sustain within the stress limitations specified in this code and all loads specified in this code.

Exception: When specifically authorized by the building official, foundation and anchorage systems which are constructed in accordance with the methods specified in Section AE600 of these provisions, or in the United States Department of Housing and Urban Development Handbook, *Permanent Foundations for Manufactured Housing*, 1984 Edition, Draft, shall be deemed to meet the requirements of this Appendix E.

AE501.2 Manufacturer's installation instructions. The installation instructions as provided by the manufacturer of the *manufactured home* shall be used to determine permissible points of support for vertical loads and points of attachment for anchorage systems used to resist horizontal and uplift forces.

AE501.3 Rationality. Any system or method of construction to be used shall admit to a rational analysis in accordance with well-established principles of mechanics.

SECTION AE502 FOUNDATION SYSTEMS

AE502.1 General. Foundation systems designed and constructed in accordance with this section may be considered as a permanent installation.

AE502.2 Soil classification. The classification of the soil at each *manufactured home* site shall be determined when required by the *building official*. The *building official* may require that the determination be made by an engineer or architect licensed by the state to conduct soil investigations.

The classification shall be based on observation and any necessary tests of the materials disclosed by borings or excavations made in appropriate locations. Additional studies may be necessary to evaluate soil strength, the effect of moisture variation on soil-bearing capacity, compressibility and expansiveness.

When required by the *building official*, the soil classification design bearing capacity and lateral pressure shall be shown on the plans.

AE502.3 Footings and foundations. Footings and foundations, unless otherwise specifically provided, shall be constructed of materials specified by this code for the intended use and in all cases shall extend below the frost line. Footings of concrete and masonry shall be of solid material. Foundations supporting untreated wood shall extend at least 8 inches (203 mm) above the adjacent finish *grade*. Footings shall have a minimum depth below finished *grade* of 12 inches (305 mm) unless a greater depth is recommended by a foundation investigation.

Piers and bearing walls shall be supported on masonry or concrete foundations or piles, or other *approved* foundation systems which shall be of sufficient capacity to support all loads.

AE502.4 Foundation design. When a design is provided, the foundation system shall be designed in accordance with the applicable structural provisions of this code and shall be designed to minimize differential settlement. Where a design is not provided, the minimum foundation requirements shall be as set forth in this code.

AE502.5 Drainage. Provisions shall be made for the control and drainage of surface water away from the *manufactured home*.

AE502.6 Under-floor clearances—ventilation and access. A minimum clearance of 12 inches (305 mm) shall be maintained beneath the lowest member of the floor support framing system. Clearances from the bottom of wood floor joists or perimeter joists shall be as specified in this code.

Under-floor spaces shall be ventilated with openings as specified in this code. If combustion air for one or more heat-producing *appliances* is taken from within the under-floor spaces, ventilation shall be adequate for proper *appliance* operation.

Under-floor access openings shall be provided. Such openings shall be not less than 18 inches (457 mm) in any dimension and not less than 3 square feet (0.279 m²) in area and shall be

located so that any water supply and sewer drain connections located under the *manufactured home* are accessible.

SECTION AE503 SKIRTING AND PERIMETER ENCLOSURES

AE503.1 Skirting and permanent perimeter enclosures. Skirting and permanent perimeter enclosures shall be installed only where specifically required by other laws or ordinances. Skirting, when installed, shall be of material suitable for exterior exposure and contact with the ground. Permanent perimeter enclosures shall be constructed of materials as required by this code for regular foundation construction.

Skirting shall be installed in accordance with the skirting manufacturer's installation instructions. Skirting shall be adequately secured to assure stability, to minimize vibration and susceptibility to wind damage, and to compensate for possible frost heave.

AE503.2 Retaining walls. Where retaining walls are used as a permanent perimeter enclosure, they shall resist the lateral displacements of soil or other materials and shall conform to this code as specified for foundation walls. Retaining walls and foundation walls shall be constructed of *approved* treated wood, concrete, masonry or other *approved* materials or combination of materials as for foundations as specified in this code. Siding materials shall extend below the top of the exterior of the retaining or foundation wall or the joint between siding and enclosure wall shall be flashed in accordance with this code.

SECTION AE504 STRUCTURAL ADDITIONS

AE504.1 General. Accessory buildings shall not be structurally supported by or attached to a *manufactured home* unless engineering calculations are submitted to substantiate any proposed structural connection.

Exception: The *building official* may waive the submission of engineering calculations if it is found that the nature of the work applied for is such that engineering calculations are not necessary to show conformance to these provisions.

SECTION AE505 BUILDING SERVICE EQUIPMENT

AE505.1 General. The installation, *alteration*, repair, replacement, *addition* to or maintenance of the building service *equipment* within the *manufactured home* shall conform to regulations set forth in the *Manufactured Home Standards*. Such work which is located outside the *manufactured home* shall comply with the applicable codes adopted by this *jurisdiction*.

SECTION AE506 EXITS

AE506.1 Site development. Exterior stairways and ramps which provide egress to the public way shall comply with applicable provisions of this code.

AE506.2 Accessory buildings. Every accessory building or portion thereof shall be provided with exits as required by this code.

SECTION AE507 OCCUPANCY, FIRE SAFETY AND ENERGY CONSERVATION STANDARDS

AE507.1 General. Alterations made to a *manufactured home* subsequent to its initial installation shall conform to the occupancy, fire-safety and energy conservation requirements set forth in the *Manufactured Home Standards*.

SECTION AE600 SPECIAL REQUIREMENTS FOR FOUNDATION SYSTEMS

AE600.1 General. Section AE600 is applicable only when specifically authorized by the *building official*.

SECTION AE601 FOOTINGS AND FOUNDATIONS

AE601.1 General. The capacity of individual load-bearing piers and their footings shall be sufficient to sustain all loads specified in this code within the stress limitations specified in this code. Footings, unless otherwise *approved* by the *building official*, shall be placed level on firm, undisturbed soil or an engineered fill which is free of organic material, such as weeds and grasses. Where used, an engineered fill shall provide a minimum load-bearing capacity of not less than 1,000 psf (48 kN/m²). Continuous footings shall conform to the requirements of this code. Section AE502 of these provisions shall apply to footings and foundations constructed under the provisions of this section.

SECTION AE602 PIER CONSTRUCTION

AE602.1 General. Piers shall be designed and constructed to distribute loads evenly. Multiple section homes may have concentrated roof loads which will require special consideration. Load-bearing piers may be constructed utilizing one of the methods listed below. Such piers shall be considered to resist only vertical forces acting in a downward direction. They shall not be considered as providing any resistance to horizontal loads induced by wind or earthquake forces.

1. A prefabricated load-bearing device that is listed and labeled for the intended use.
2. Mortar shall comply with ASTM C 270 Type M, S or N; this may consist of one part portland cement, one-half part hydrated lime and four parts sand by volume. Lime shall not be used with plastic or waterproof cement.

3. A cast-in-place concrete pier with concrete having specified compressive strength at 28 days of 2,500 psi (17 225 kPa).

Alternate materials and methods of construction may be used for piers which have been designed by an engineer or architect licensed by the state to practice as such.

Caps and leveling spacers may be used for leveling of the *manufactured home*. Spacing of piers shall be as specified in the manufacturer's installation instructions, if available, or by an *approved designer*.

SECTION AE603 HEIGHT OF PIERS

AE603.1 General. Piers constructed as indicated in Section AE602 may have heights as follows:

1. Except for corner piers, piers 36 inches (914 mm) or less in height may be constructed of masonry units, placed with cores or cells vertically. Piers shall be installed with their long dimension at right angles to the main frame member they support and shall have a minimum cross-sectional area of 128 square inches (82 560 mm²). Piers shall be capped with minimum 4-inch (102 mm) *solid masonry* units or equivalent.
2. Piers between 36 and 80 inches (914 mm and 2032 mm) in height and all corner piers over 24 inches (610 mm) in height shall be at least 16 inches by 16 inches (406 mm by 406 mm) consisting of interlocking masonry units and shall be fully capped with minimum 4-inch (102 mm) *solid masonry* units or equivalent.
3. Piers over 80 inches (2032 mm) in height may be constructed in accordance with the provisions of Item 2 above, provided the piers shall be filled solid with grout and reinforced with four continuous No. 5 bars. One bar shall be placed in each corner cell of hollow masonry unit piers or in each corner of the grouted space of piers constructed of *solid masonry* units.
4. Cast-in-place concrete piers meeting the same size and height limitations of Items 1, 2 and 3 above may be substituted for piers constructed of masonry units.

SECTION AE604 ANCHORAGE INSTALLATIONS

AE604.1 Ground anchors. Ground anchors shall be designed and installed to transfer the anchoring loads to the ground. The load-carrying portion of the ground anchors shall be installed to the full depth called for by the manufacturer's installation directions and shall extend below the established frost line into undisturbed soil.

Manufactured ground anchors shall be listed and installed in accordance with the terms of their listing and the anchor manufacturer's instructions and shall include means of attachment of ties meeting the requirements of Section AE605. Ground anchor manufacturer's installation instructions shall include the amount of preload required and load capacity in various types of soil. These instructions shall include tensioning

adjustments which may be needed to prevent damage to the *manufactured home*, particularly damage that can be caused by frost heave. Each ground anchor shall be marked with the manufacturer's identification and listed model identification number which shall be visible after installation. Instructions shall accompany each listed ground anchor specifying the types of soil for which the anchor is suitable under the requirements of this section.

Each *approved* ground anchor, when installed, shall be capable of resisting an allowable working load at least equal to 3,150 pounds (14 kN) in the direction of the tie plus a 50 percent overload [4,725 pounds (21 kN) total] without failure. Failure shall be considered to have occurred when the anchor moves more than 2 inches (51 mm) at a load of 4,725 pounds (21 kN) in the direction of the tie installation. Those ground anchors which are designed to be installed so that loads on the anchor are other than direct withdrawal shall be designed and installed to resist an applied design load of 3,150 pounds (14 kN) at 40 to 50 degrees from vertical or within the angle limitations specified by the home manufacturer without displacing the tie end of the anchor more than 4 inches (102 mm) horizontally. Anchors designed for connection of multiple ties shall be capable of resisting the combined working load and overload consistent with the intent expressed herein.

When it is proposed to use ground anchors and the *building official* has reason to believe that the soil characteristics at a given site are such as to render the use of ground anchors advisable, or when there is doubt regarding the ability of the ground anchors to obtain their listed capacity, the *building official* may require that a representative field installation be made at the site in question and tested to demonstrate ground anchor capacity. The *building official* shall approve the test procedures.

AE604.2 Anchoring equipment. Anchoring *equipment*, when installed as a permanent installation, shall be capable of resisting all loads as specified within these provisions. When the stabilizing system is designed by an engineer or architect licensed by the state to practice as such, alternative designs may be used, providing the anchoring *equipment* to be used is capable of withstanding a load equal to 1.5 times the calculated load. All anchoring *equipment* shall be listed and labeled as being capable of meeting the requirements of these provisions. Anchors as specified in this code may be attached to the main frame of the *manufactured home* by an *approved* $\frac{3}{16}$ -inch-thick (4.76 mm) slotted steel plate anchoring device. Other anchoring devices or methods meeting the requirements of these provisions may be permitted when *approved* by the *building official*.

Anchoring systems shall be so installed as to be permanent. Anchoring *equipment* shall be so designed to prevent self-disconnection with no hook ends used.

AE604.3 Resistance to weather deterioration. All anchoring *equipment*, tension devices and ties shall have a resistance to deterioration as required by this code.

AE604.4 Tensioning devices. Tensioning devices, such as turnbuckles or yoke-type fasteners, shall be ended with clevis or welded eyes.

SECTION AE605 TIES, MATERIALS AND INSTALLATION

AE605.1 General. Steel strapping, cable, chain or other *approved* materials shall be used for ties. All ties shall be fastened to ground anchors and drawn tight with turnbuckles or other adjustable tensioning devices or devices supplied with the ground anchor. Tie materials shall be capable of resisting an allowable working load of 3,150 pounds (14 kN) with no more than 2 percent elongation and shall withstand a 50 percent overload [4,750 pounds (21 kN)]. Ties shall comply with the weathering requirements of Section AE604.3. Ties shall connect the ground anchor and the main structural frame. Ties shall not connect to steel outrigger beams which fasten to and intersect the main structural frame unless specifically stated in the manufacturer's installation instructions. Connection of cable ties to main frame members shall be $\frac{5}{8}$ -inch (15.9 mm) closed-eye bolts affixed to the frame member in an *approved* manner. Cable ends shall be secured with at least two U-bolt cable clamps with the "U" portion of the clamp installed on the short (dead) end of the cable to assure strength equal to that required by this section.

Wood floor support systems shall be fixed to perimeter foundation walls in accordance with provisions of this code. The minimum number of ties required per side shall be sufficient to resist the wind load stated in this code. Ties shall be evenly spaced as practicable along the length of the *manufactured home* with the distance from each end of the home and the tie nearest that end not exceeding 8 feet (2438 mm). When continuous straps are provided as vertical ties, such ties shall be positioned at rafters and studs. Where a vertical tie and diagonal tie are located at the same place, both ties may be connected to a single anchor, provided the anchor used is capable of carrying both loadings. Multisection *manufactured homes* require diagonal ties only. Diagonal ties shall be installed on the exterior main frame and slope to the exterior at an angle of 40 to 50 degrees from the vertical or within the angle limitations specified by the home manufacturer. Vertical ties which are not continuous over the top of the *manufactured home* shall be attached to the main frame.

SECTION AE606 REFERENCED STANDARDS

ASTMC 270-04 Specification for Mortar for Unit Masonry	AE602
NFPA 501-03 Standard on Manufactured Housing	AE201

ADD TO SECTION 5 MANUFACTURED HOUSING

APPENDIX E

Additions, Insertions, Deletion and Changes to Adopted IRC/2009 Appendix E

Section AE 101: Scope

AE101.1 General. Change to be applicable to all Manufactured Homes used as a single dwelling unit installed on privately owned and rental lots.

Section AE 301 Permits

AE301.1 Initial installation. Delete the following: When approved by the Building Official, such permits may include accessory buildings and structures and their building service equipment when the accessory buildings or structures will be constructed in conjunction with the manufactured home installation.

AE301.3 Accessory buildings. To read as: Permits shall be required for all Accessory buildings and structures and their building service equipment. Permit Issuance and fees therefore shall be in conformance with the codes applicable to the types of work involved.

Section AE303 Permit Issuance

AE303.4 Permit Expiration. Changed previously by Commission Order 03-255. See attached.

Section AE305 Inspections

AE305.2 Inspection requests. Add the following: It shall be the duty of permit applicant to verify that all required inspections have been made and passed by the Building Official. For Missed Inspections Refer to Section, R108.7 of the Franklin County Building Department Adoption of the "2000 International Codes" and Attached Ordinance.

Section AE502 Foundation Systems

AE502.4 Foundation design. Add: See Table R404.1.1(1) of the Franklin County Building Department Adoption of the "2000 International Codes" and Attached Ordinance.

Section AE602 Pier Construction

AE602.1 General. Delete #1. A prefabricated load-bearing device that is listed and labeled for the intended use.

ADD: AE602.2 Piers. Piers below grade must be 24" wide by 24" long x 24" deep and meet requirements of AE602.1 (3).

ADD: AE602.3 Runners. Runners must be 6" thick by 24" wide by length of home with minimum of 2- #4 rerods tied on chairs 3" off of bottom of form and meet requirements of AE602.1(3).

ADD: AE602.4 Cross Runners. Cross runners must be the width of the home and placed within 2 feet of each end and not spaced more than 8 feet on center. Cross runners must be 24" wide x 24" deep with 2 - #4 rerods tied on chairs 3" off of bottom of footing and meet requirements of AE602.1(3).

ADD: AE602.5 Pads/Slabs. Solid pads or slabs must be the width x length of the home by 6" thick with #4 rerod placed 24" on center each way be tied on chairs 3" off of bottom of form or with 6"x 6" #10 WWM and meet requirements of AE602.1(3).

Section AE605 Ties, Materials and Installation

AE605.1 General. Add: Home Manufacturer approval of use of alternative tie down system for that specific home is required for approval by Building Official.

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