

# **RIVERSIDE COUNTY DEPARTMENT OF BUILDING AND SAFETY**

## **An Owners' Guide For the Installation of a Manufactured Home**



**RIVERSIDE COUNTY DEPARTMENT OF BUILDING  
& SAFETY**

*Form No. 284-017 (Revised 12/2018)*

# **An Owners' Guide for the Installation of a Manufactured Home**

## **I. THE PURPOSE OF THIS GUIDE**

This guide provides basic information regarding the actual installation requirements and inspection processes involved in installing a manufactured home in Riverside County. It is not intended to be a "how to" installation guide, but a detailed overview of the installation process, so that the owner may understand and monitor the progress of his or her own installation.

## **II. OWNER-BUILDER VERSUS LICENSED CONTRACTOR**

The owner may elect to perform all or part of the work on the installation of the manufactured home or other accessory structures. If an owner decides to be an owner-builder, it then becomes the owner's responsibility to know the code requirements and techniques necessary to perform the installation in a professional like manner. A licensed contractor may be hired to perform all or part of the work, and under certain circumstances, competent workers may be hired under a time and materials agreement. Restrictions may apply to the work either may perform. For more information contact the **Contractors' State License Board** at 800.321.2752.

Be aware that if someone is hired to work on your property, State law requires that person to be covered by Workers' Compensation Insurance. You may obtain this insurance through a homeowner's insurance carrier. (Licensed contractors must carry Workers' Compensation Insurance on any employees who work for them, but not on themselves if they work alone.)

## **III. TYPES OF INSTALLATIONS AND PERMITS**

Manufactured homes may be physically installed in three different configurations: **on piers which set at ground level** and are hidden by "skirting" (see Figure 2); **on piers which are below ground level** in a "low profile" configuration (see Figure 3); and on a **permanent foundation** (consult with your manufactured home manufacturer). Concurrent with each of these types of installations, an applicant must obtain a site preparation, or "site prep" permit for the installation of the manufactured home's utilities. These utilities include the sewage disposal system, and the gas, electric and water services. Each utility will be described

separately below. In addition, permits are required for all accessory structures, including awnings, carports, decks, patios, ramadas, cabanas (habitable room additions), storage sheds over 120 square feet, and garages. See Housing and Community Development, Title 25, Division 1, Chapter 2, Section 1018. In addition, the grading of the property is subject to separate permit and plan requirements of the California Building Code. A grading permit will be required if any non-load bearing grading or area fill with a depth of one (1) or greater is placed.

## **IV. PHASE 1 - SITE PREPARATION UTILITY PERMIT**

### **A. General (See sample Site Plan, Figure 4)**

All in-ground utilities must be inspected and approved prior to covering. Note that installations on a permanent foundation are to have utility connections made permanent in a manner applicable to buildings. Refer to the adopted California Building Codes for these requirements. Once installed on a permanent foundation system, the manufactured home becomes a fixture and an improvement to the real property to which it is attached. License fees are no longer paid to the Department of Motor Vehicles, but this structure is now included on the assessment of the property and taxed accordingly.

Except for permanent foundations, all utilities are to terminate above the ground surface above grade at the manufactured home, and be positioned within the following parameters:

Water Outlet: Shall terminate within four (4) feet of the outside of the unit, or under the unit within eighteen (18) inches of the exterior wall of the unit, per Title 25, Section 1274.

Gas Outlet: Shall terminate within four (4) feet of the unit, or proposed location of the unit on the lot. Each unit connected to the gas riser outlet shall be connected by a listed flexible gas connector; per Title 25, Section 1222 .

Drain Outlet: Shall terminate within four (4) feet outside the unit, or under the unit within 18 inches of the outside wall; per Title 25, Section 1256.

Electric: Equipment to supply electric power to a unit shall be located within four (4) feet of the unit or the proposed location of the unit, per Title 25, Section 1184.

## **B. Electric Service and Connection to Unit**

Equipment installed to supply electric energy to a manufactured unit shall be rated at not less than 100-amperes and shall be listed and labeled "Service Equipment", "Suitable for Use as Service Equipment" or "Suitable for Use as Service Equipment for Manufactured Homes". The lot service shall be capable of supplying not less than the required demand to the unit by the installation of a circuit breaker or fused disconnecting switch for connecting the unit feeder assembly by a permanent wiring method. The rating of the overcurrent protection in the unit lot service equipment shall not exceed the rating of the feeder assembly connected by a permanent wiring method. The electrical rating is normally indicated on a sticker located on the exterior siding near the manufactured home's electrical panel. Older manufactured homes may not have this sticker. In this case, the rated capacity would be that of the main circuit breaker. See Title 25, Section 1180.

Consult with the electric company for the meter location and installation requirements. If the meter cannot be installed within the length of the factory installed feeder assembly, an approved wiring method may be run from the meter to a rain-tight junction box. If a junction box is used, it must be supported by two or more metal conduits, threaded, and wrench tight into the junction box or into hubs identified for that purpose, or by a 4" x 4" redwood treated wood post, or a minimum 1 ½" steel pipe. These three methods of support must be stabilized with a minimum 3 1/2" concrete slab surrounding the supports at least 6". Metallic junction boxes shall be installed above grade or in accordance with their listings to prevent corrosion and sized per Article 314 of the California Electrical Code.

All requirements of the California Electrical Code apply to the installation from the junction box to the meter location. For example, the electrical conduit between the service and the J-box must be buried a minimum of 18" deep, except under driveways and parking lots which must be 24" deep. See CEC Table 300-5.

## **C. Gas Yard Piping**

Gas yard piping is the supply piping from the meter or Liquefied Petroleum Gas (LPG) tank to the flexible connector at the manufactured home.

LPG tanks 125 – 500 gal w.c. must be placed a minimum of ten (10) feet from the manufactured home and all property lines. Gas piping must not be installed underground beneath buildings, concrete slabs or other paved areas of a lot directly abutting the unit. See the exception in Title 25, Section 1216. All main gas piping shall have a minimum earth cover of eighteen (18) inches when installed in the same trench as other utilities; and covered with clean fill. All buried or submerged metallic gas piping shall be protected from corrosion by approved coating or wrapping materials. All gas pipings protective coatings shall

be approved types, machine applied, and conform to recognized standards. Field wrapping shall provide equivalent protection and is restricted to those short section and fittings necessarily stripped for threading or welding. Risers shall be coated or wrapped to a point at least six (6) inches above grade.

When non-metallic gas piping is installed underground, a locating tape or No. 14 AWG or larger copper tracer wire shall be installed with and attached to the underground piping for the purpose of locating the piping system. The locating tape or tracer wire shall terminate above grade at an accessible location at one or more ends of the piping system. Every portion of a plastic gas piping system consisting of metallic risers or fittings shall be cathodically protected against corrosion. Non-metallic gas piping that is marked "Natural Gas" may not be used within or under any structure or manufactured home, and shall be installed a minimum of 18" deep for its entire length. Non-metallic gas piping is not permitted for use with LP gas unless specifically listed for LPG use. See Title 25, Section 1206 and NFPA 54.

Gas yard piping is to be a minimum of 3/4". If a long run is necessary, larger size piping may be required. Use California Plumbing Code Table 12.7-12.41 to size the gas piping system. The minimum amount of gas needed is indicated in BTU's on a sticker located on the exterior siding near the end of the manufactured home gas pipe outlet.

A pressure test is required for gas yard piping and shall be no less than 1-1/2 times the proposed maximum working pressure, but not less than 3 psi for period not less than 10 minutes without a perceptible drop. Note: the pressure gauge must be in place and the line pressurized before the inspector is to arrive on site. Each lot shall have a gas shut off valve listed for its intended use and installed in a readily accessible location up stream of the lot gas outlet. The valve shall be located on the lot gas riser outlet at a height of not less than six (6) inches above grade. The lot gas shutoff valve shall not be located under or within any unit, or accessory building or structure. See Title 25, Section 1220–1224. The manufactured home must have a maximum 6' long listed flexible connector. Do not connect the home to the gas yard piping until after the air test has been approved by the inspector and the manufactured home gas piping has also been tested and approved. See item V, "Phase II – manufactured home Installation".

#### **D. Water Service**

Each lot shall be provided with a potable water lot service outlet. The lot water service outlet riser shall be an approved rigid metallic material and not less than three-quarter (3/4) inch nominal galvanized metal or schedule 40 plastic pipe size. All water service piping shall be at least twelve (12) inches below the average frost depth with a minimum twelve (12) inches below finish grade. Risers terminating within the utility area must have a shut-off valve and hose bib. No plastic water piping is permitted under a building or manufactured home.

Water piping shall be tested with a 20 psi working water pressure. Except for plastic piping a 50 pounds per square inch (psi) air pressure test may be substituted for the water test. See Title 25 Section 1270-1278 or CPC Section 609.4.

### **E. Onsite Wastewater Treatment System (OWTS)**

If your property is served by a private wastewater treatment system (sewage disposal system), a Riverside County Registered Environmental Health Specialist will explain the septic regulations that will affect the design, location and feasibility of your project. The septic tank can be no closer than 5 feet to the manufactured home or leaching area, and the leachline or seepage pit must be a minimum of 8 feet from the home. The tank size will be determined from the number of bedrooms or plumbing fixture unit counts. . Where there are no recorded rates, a percolation report must be provided to Environmental Health. This information will be utilized to appropriately size the disposal field. The sewer line to the septic tank or to the street sewer system must be not less than three (3) inches in diameter and not smaller than the manufactured home sewer outlet size. See Title 25, Section 1252-1268. Environmental Health is responsible for issuing the permit and the inspection of onsite wastewater treatment systems.

### **SITE PREPERATIONS UTILITY INSPECTION REQUESTS:**

This first phase involves the inspecton of the site utilities associated with the manufactured home. The inspections for the site utilites are inspected under the **Site Preparation Permit**. The inspection items and associated numbers to call with your request are as follows: **#7**; electrical conduit (if applicable); **#32**; water service, **#34**; sewer lateral connecting to the sewer district's street sewer line, **#39**; grounding and bonding, **#40**; electrical service panel, and **#41**; gas yard line installation and test. These inspection items are listed on your job card. All inspection items must be approved prior to backfill of the trenches. After the trenches have been backfilled and compacted, a final inspection **#49** needs to be requested. **Note: #33** private sewage disposal system inspection must be scheduled with the Enviornmental Health Department prior to a final inspection request on your site prep permit.

## **V. PHASE II – MANUFACTURED HOME INSTALLATION**

### **A. General**

The second phase involves the installation (set up) of the manufactured home which includes the construction and inspection of the manufactured home support system whether it be a system of support piers or a more permanent foundation system. The connection of the site utilities (approved on the Site Prep Permit) to the manufactured home are also inspected.

**B. Manufactured home’s roof and pier requirements.**

Owners should be aware when purchasing a manufactured home that the elevation of the installation location dictates the required roof strength for snow conditions. In Riverside County, the following roof live load requirements apply:

**General Roof Live Load Requirements for MH-units**

<u>Elevation</u>	<u>Pounds per SqFt</u>
0-3000 feet	20
3001-3500 feet	30
3501 -5000 feet	60

The individual load bearing supports of a support system supporting a manufactured home manufactured after October 7,1973, shall be installed in accordance with the approved manufacturer's installation instructions. Obtaining the installation instructions from the manufacturer for use by the installer and the building inspector, is the responsibility of the permit applicant. See Title 25, Sections 1020(a) and 1335. Piers of concrete or steel shall have a mechanical connection at the point of attachment to the unit and a mechanical connection at the point of attachment at the pier support or the footing. See Title 25, Section 1334.1. Once the placement of piers is determined from the installation instruction based upon the roof live load factors above, they may be configured above grade as shown in Figure 2 and 5. For manufactured homes installed in a "low profile" configuration, refer to Figure 3 for specific requirements. Note that the area beneath a manufactured home shall be sloped to provide drainage to an outside surface drainage facility. If the area beneath a manufactured home cannot be made to drain to an outside surface drainage facility, a subsurface drain shall be installed in accordance with the following:

1. A minimum of a 4" diameter drain pipe, with the open end screened and secured in place with concrete, brought to grade at the lowest point in the underfloor area.
2. The drain pipe shall empty into a leach line that contains crushed rock under the leach pipe that is a minimum of 3' wide by 3' deep by 6' long.

All manufactured homes not on permanent foundations must have a tiedown system to support the installation against wind loading. See Title 25, Section 1336.1 through 1336.3. Tiedowns systems used must be one of the following:

- I. A tiedown system as specified within the manufactured home manufacturer's instructions.
- II. A listed (by a testing agency) tiedown assembly.
- III. An engineered system by a California licensed engineer or architect which provides the necessary tiedown wind resistance.

- IV. An engineered tiedown system issued as an HCD Standard Plan Approval (SPA).

### **C. Permanent Foundation Systems**

Manufactured Home on a Permanent Foundation System on a lot zoned for a conventional single-family residential dwelling must comply with the following requirements:

- A. Roofing Material. Any roof material permitted under Ordinance 457, except metal roofing may be utilized.
- B. Siding Material. Any siding material permitted under Ordinance 457, except metal siding may be utilized.
- C. All manufactured homes shall be no less than 750 square feet.

The requirements of this section shall not apply if the manufactured home is already in place on lot for which the permit is sought and was approved pursuant to a permit previously issued by the County of Riverside.

The foundation system shall be constructed and the manufactured home installed in accordance with the plans and instructions provided by one of the following:

1. The manufacturer of the manufactured home.
2. A California licensed engineer or architect for an individual manufactured home where manufacturer's installation instructions are not available. Plans must have original signature of the engineer or architect.
3. A Standard Plan Approval (SPA) from the Department of Housing and Community Development (HCD). if the SPA from HCD is submitted, it must indicate the specific manufactured homes covered by the approved plans and the design loads and conditons must be consistant for the locality. There is no plan check fee for a SPA submital.
4. Foundations for cabanas, porches, and stairways which are accessory to manufactured home units on a foundation system are subject to approval as listed in items one through three.

Please note that when adding a permanent Foundation System to an existing manufactured home, ALL PRE-EXISTING CODE VIOLATIONS MUST BE CORRECTED before the Foundation System permit can be finalized and a Certificate of Occupancy issued.



## **D. Connection/Test of the Utilities**

During the installation phase, all site prep utilities installed in the "Site Preparation" phase (except gas) are now to be connected to the manufactured home and tested as follows:

### **1. Gas Piping**

The manufactured home gas piping system (the factory-installed piping on the unit itself) shall be subjected to a pressure test with all appliance shutoff valves, except those ahead of fuel gas cooking appliances, in the open position. Appliance shut-off valves ahead of fuel gas cooking appliances may be closed. The test shall consist of air pressure at not less than (10) inches nor more than a maximum of (14) inches water column. [Six (6) ounces to a maximum eight (8) ounces per square inch.] The system shall be isolated from the air pressure source and maintain this pressure for not less than two (2) minutes without perceptible leakage.

Connection of the gas piping to the manufactured home shall be by a listed gas flex connector not more than 6' in length. For permanent foundation applications this connection is to be hard gas pipe.

### **2. Water**

The manufactured home must be connected to the water pipe riser with an approved connector of minimum 1/2" I.D. copper tubing, type L or M. Water pressure over 80 psi requires a pressure regulator. A minimum of 20 psi water pressure at maximum operating conditions is required prior to final approval of the manufactured home. See Title 25, Sections 1282 & 1276 and CPC 608.2.

The potable water distribution system of the manufactured home unit shall show no evidence of leakage under normal operating pressures. If water at normal operating pressure is not available, the system shall be tested by a fifty (50) psi air pressure test for a period of not less than fifteen (15) minutes without leaking.

### **3. Sewage Disposal**

A flexible connector should be used when connecting the manufactured home drain to the sewer line. An approved two-way cleanout should be installed between the building drain and the sewer line where no upper terminal cleanout is-provided for the building drain. All drain and sewer lines must have a minimum of 1/4 inch per foot slope. When ABS or other listed plastic material is installed for sewer line it shall be installed a minimum of 12 inches below the finish grade once outside the manufactured home.

The manufactured home unit drainage piping system shall be connected to the lot drain inlet, and tested by allowing water to flow into all fixtures, and receptors, including the clothes washer standpipe, for a period of three (3) minutes. If water under pressure is not available, the drainage piping system shall be tested by letting at least three (3) gallons of water into each fixture and receptor. There shall be no visible evidence of leaks.

#### **4. Electrical Service Continuity and Grounding Test**

The electrical wiring and power supply feeder assembly of the manufactured home unit shall be tested for continuity and grounding in the presence of the inspector, using testing equipment supplied by the applicant. The electrical wiring system of the manufactured home shall not be energized during the test. A manufactured home unit equipped with a power supply cord shall not be connected to the lot service equipment. A manufactured home equipped with a feeder assembly shall have the flexible metal conduit of the feeder assembly connected to the lot service equipment; however, the supply conductors including the neutral conductor shall not be connected.

The continuity test shall be made with all interior branch circuit breakers and all switches controlling individual outlets, fixtures and all appliances in the "on" position. The test shall be made by connecting one lead of the test instrument to the manufactured home unit grounding conductor at the point of supply to the feeder assembly, and applying the other lead to each of the supply conductors, including the neutral conductor. There shall be no evidence of any connection between any of the supply conductors and the grounding conductor. In addition, all noncurrent-carrying metal parts of electrical equipment, including fixtures and appliances shall be tested to determine continuity between such equipment and the equipment grounding conductor.

Upon completion of the continuity test the power supply cord or feeder assembly shall be connected at the lot service equipment. A further continuity test shall then be made between the grounding electrode and the chassis of the manufactured home unit.

When a manufactured home unit consists of two (2) or more sections, all utility connections from one section to another shall be visually inspected and included in the tests.

Upon approval of the installation and satisfactory completion of the gas and electrical tests, the lot equipment shall be approved for service connection.

## **INSPECTION REQUEST- MANUFACTURED HOME INSTALLATION:**

This second phase involves the inspection of the installation (set up) of the manufactured home. The set up of the manufactured home is inspected under the **Manufactured home Installation Permit**. The inspection items and associated numbers to call with your request are as follows: **#10**; ridge bolting (for double-wides), **#32**; manufactured home water piping and connection, **#34**; manufactured home drain connection/cleanout, **#39**; electrical grounding and bonding (continuity test), **#41**; manufactured home gas piping/test, and **#45**; piers, supports, attachments and **#49**; final. All work must be completed prior to scheduling an inspection. This is a one-time inspection so it is important to verify that your manufactured home or manufactured home will pass inspection. If you have corrections and a second inspection is required, a reinspection fee may be required.

Listed below are additional items that will be inspected on the **final inspection**:

1. Physical protection for the gas meter if it will be installed near vehicular traffic, such as driveways or carports. [Title 25, Section 1228].
2. House numbers visible from the street. [Ordinance No. 463].
3. Hose bib anti-backflow devices installed. [Title 25, Section 1274 &1308].
4. Porches, steps, handrails shall be provided at exit doors as required by Title 25, Section 1368.
5. Lot precise grading for drainage shall conform to the California Building Code. [Title 25, Section 1045].
6. Electrical Service panel closed and secured, grounding and J-box connections made. [ Title 25, Sections 1170, 1180 and 1182].
7. Manufactured home skirting shall be installed with required access and ventilation as specified in Title 25, Section 1346 if installed above grade.
8. Driveways as required by Land Use regulations in Ordinance No. 348.

Once the manufactured home has passed the final inspections, the inspector will leave a "Manufactured home Installation Acceptance" certificate for manufactured homes not on permanent foundations or a "Manufactured home Certificate of Occupancy" for manufactured homes on permanent foundations. Additionally, the inspector will post "Acceptance Notice" tags at the electric service panel, approving electrical and gas service connections.

## TYPES OF PERMITS REQUIRED

**ACCESSORY STRUCTURES** - Permits for awnings, carports, porches, patios, storage sheds, ramadas, cabanas, and other related structures.]

**EARTHQUAKE RESISTANT BRACING SYSTEMS** - Anchoring system or bracing system that is installed to protect the occupants and reduce the damage to the manufactured home in the event of an earthquake. Note: "Tiedowns" are required on every new manufactured home installation to resist wind loads of fifteen pounds per square foot or the design wind load of the home, whichever is greater. These tiedowns generally do not qualify as earthquake resistant bracing systems.

**LOW PROFILE** - Retaining wall that allows the floor level of a manufactured home to be installed closer to grade. See Figure 5.

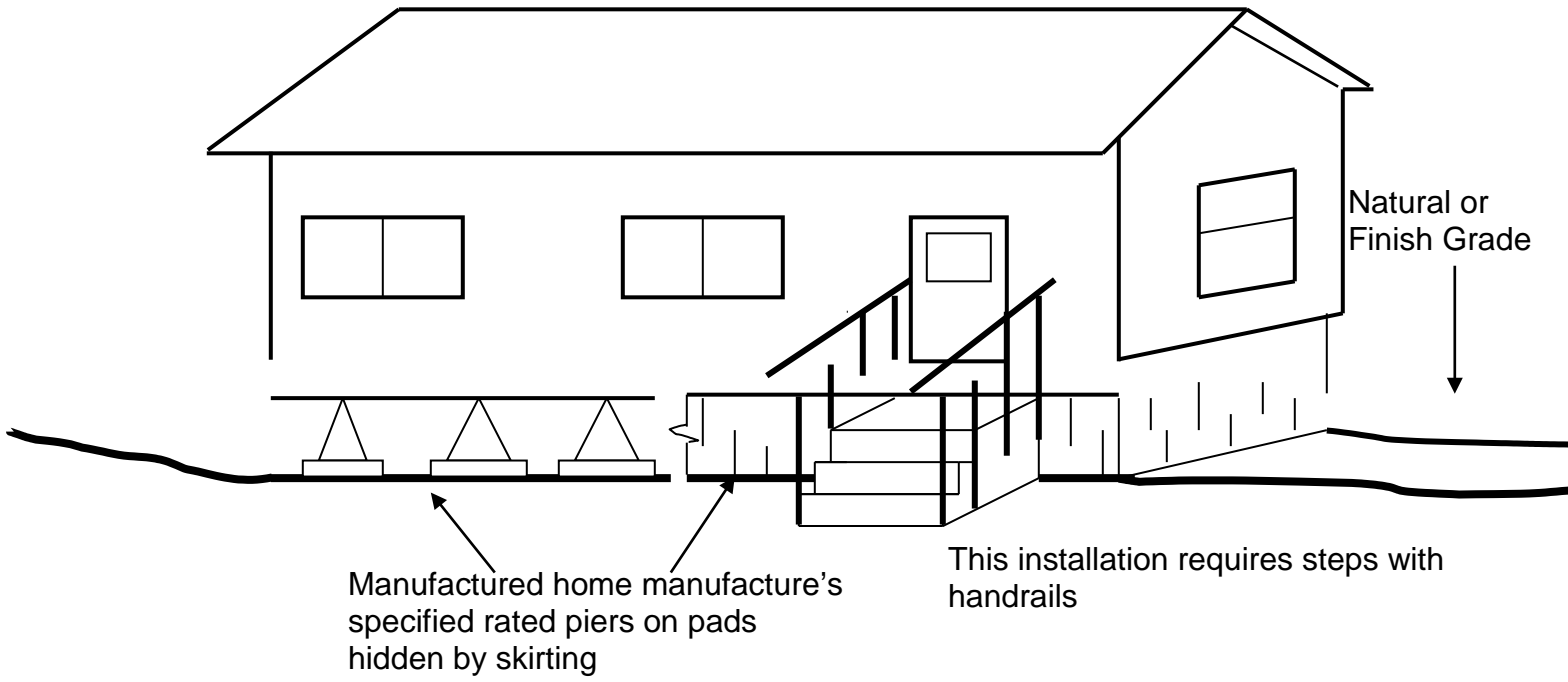
**MANUFACTURED HOME INSTALLATION** – Permit for the inspection of the installation (set-up) of the manufactured home.

**MANUFACTURED HOME SITE PREP**- Permit for the inspection of the installation of gas yard piping, water service piping, sewer connection or sewage disposal system and the main service panel and conduit for the manufactured home service connection.

**PERMANENT FOUNDATION SYSTEM** - A foundation system connected to the manufactured home that is designed to withstand the vertical and lateral forces due to dead load, roof and floor live loads, wind and seismic loads as established for permanent buildings

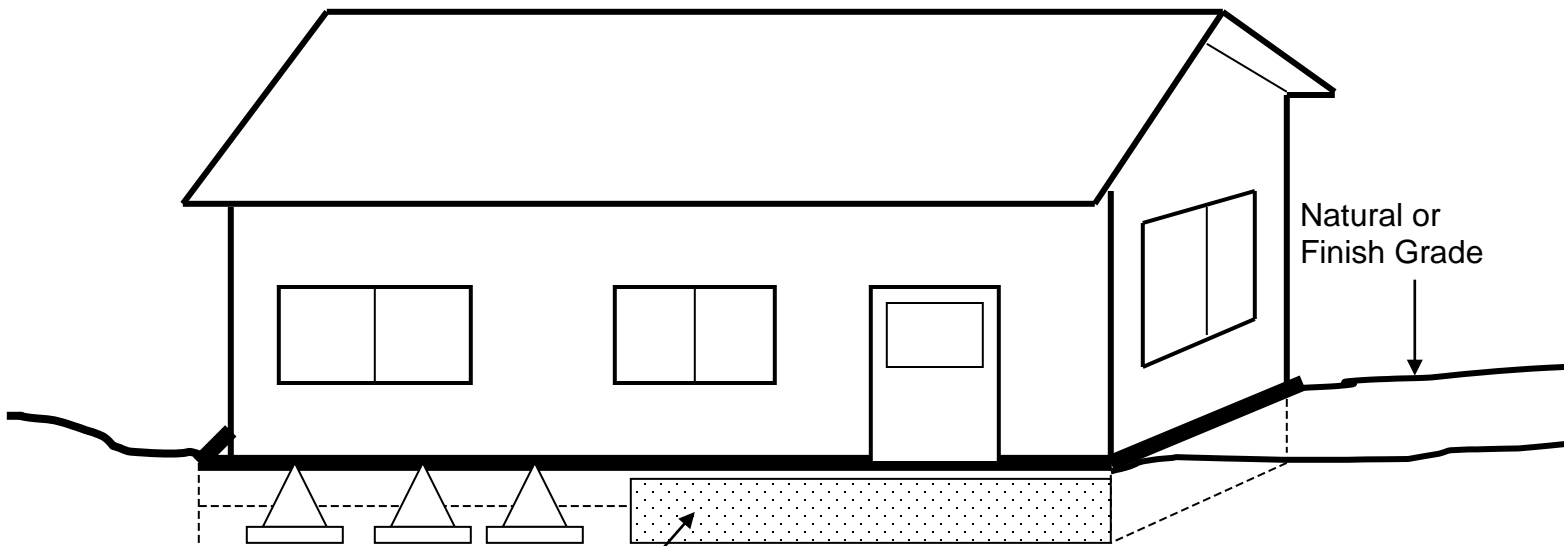
**MANUFACTURED HOME SET ON PIERS**  
**ABOVE GROUND**

Figure 2



**LOW PROFILE  
MANUFACTURED HOME**

**Figure 3**



Concrete block “retaining wall” which does not touch the manufactured home, but surrounds it on 4 sides. Piers are set below natural or finish grade.

NOTE: Permanent foundations may appear like either an “above ground” installation or a low profile, but in all cases the mobilehome is permanently attached to the foundation.

# SITE PLAN

PERMIT NO. \_\_\_\_\_

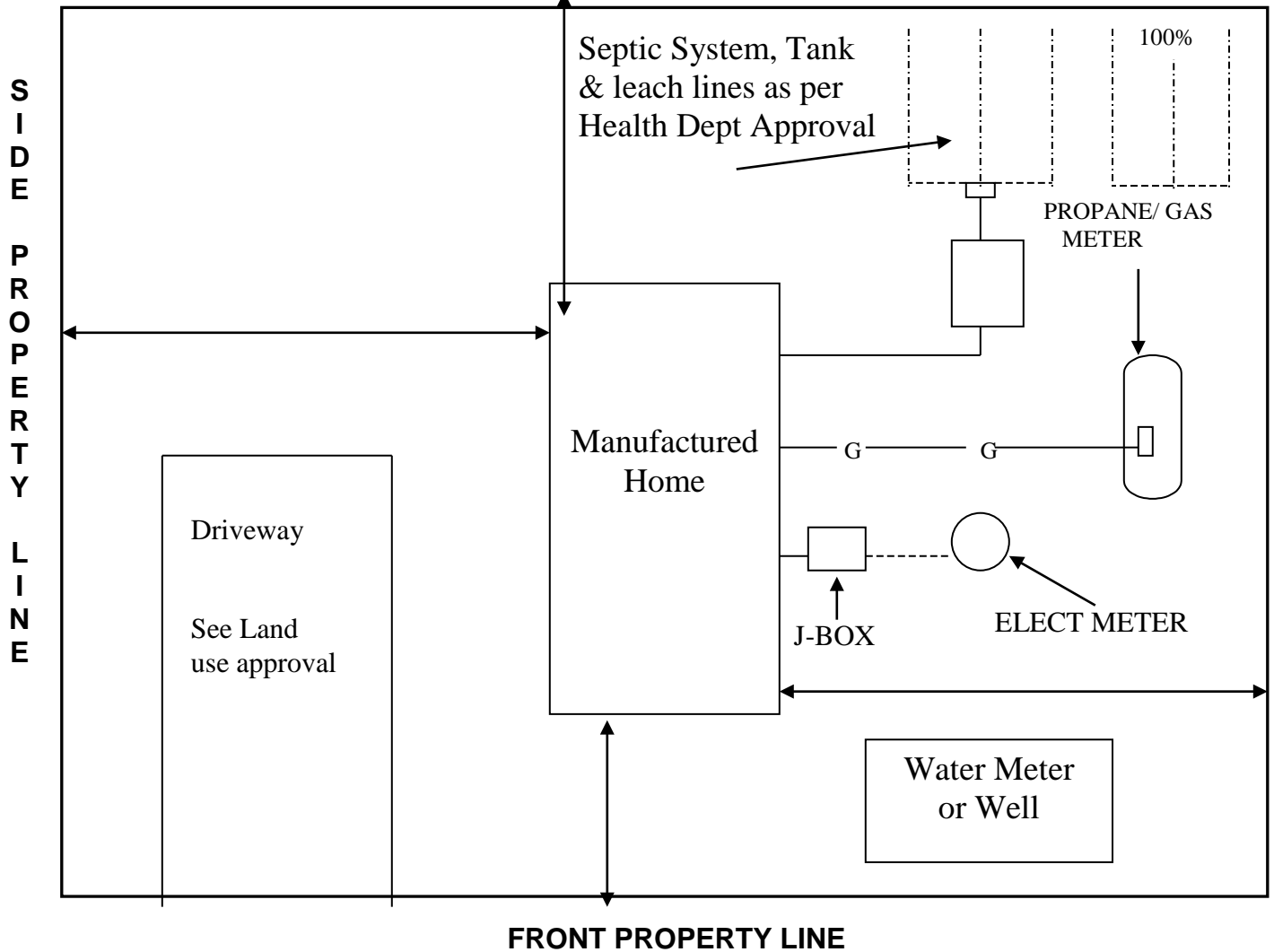
NAME \_\_\_\_\_ PHONE ( ) \_\_\_\_\_

SITE ADDRESS \_\_\_\_\_

ASSESSORS NUMBER \_\_\_\_\_ PARCEL NUMBER \_\_\_\_\_

**Provide North Arrow**

**REAR PROPERTY LINE**



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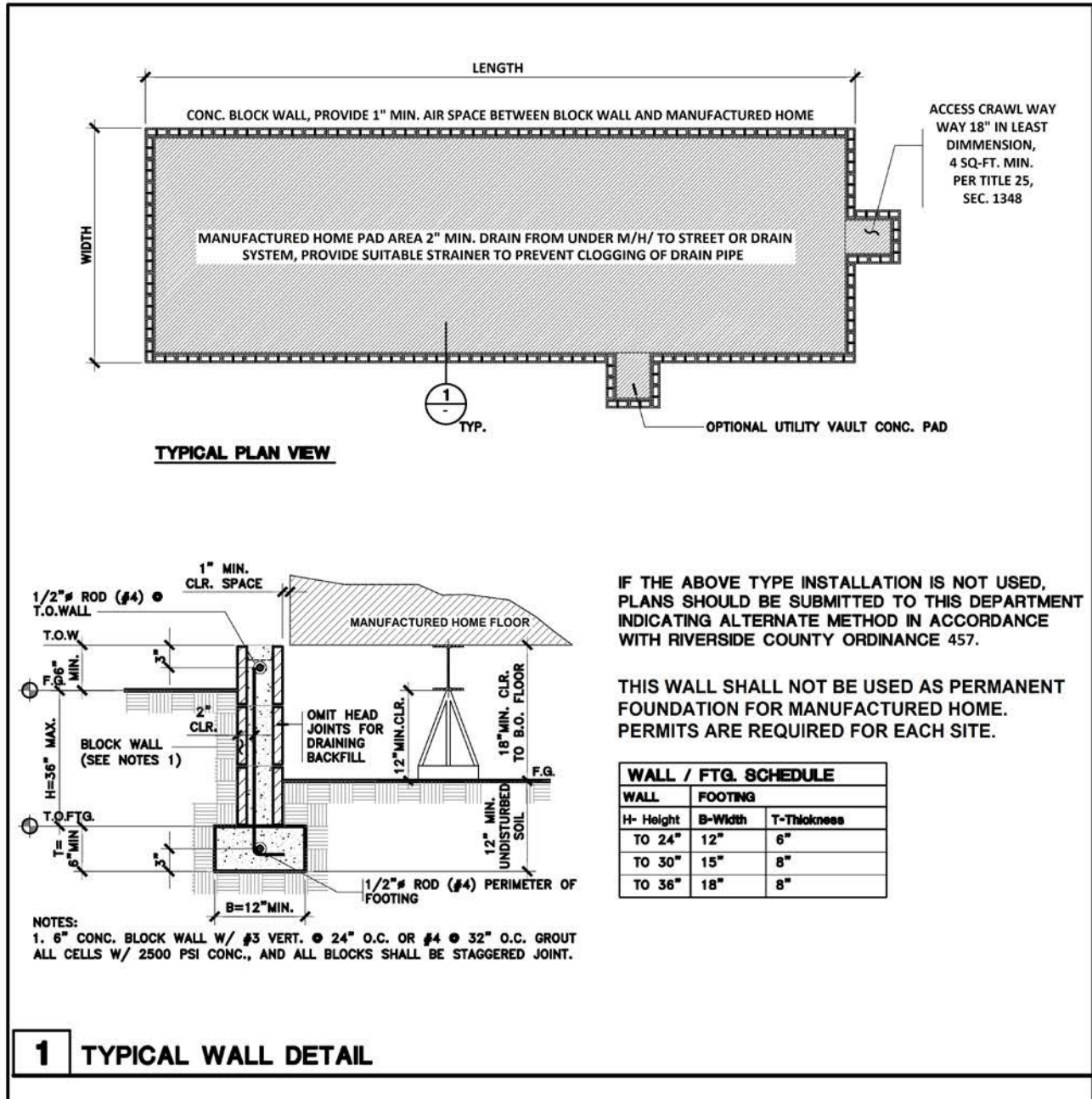
**Figure 4**



Rendell Klaarenbeek  
Deputy Director of TLMA  
Building Official

# COUNTY OF RIVERSIDE BUILDING AND SAFETY DEPARTMENT

## LOW PROFILE



**1 TYPICAL WALL DETAIL**

PROJECT INFO:

**COUNTY STANDARD LOW PROFILE MANUFACTURED HOME INSTALLATION**

Dec. 06.18

Dwg. No: **284-017A**

DEPT. USE ONLY