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**DESIGN, INFORMATION  
AND  
PROCEDURAL MANUAL  
FOR  
MOBILE HOME PARKS**



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### FOREWORD

This publication is intended to supplement publication SG-93, Mobile Home Park Regulations, adopted by the West Virginia State Board of Health, effective October 1, 1971, by providing guidelines, requirements and standards for the development of a mobile home park.

The various sections of this publication are referenced directly to the pertinent section of the Mobile Home Park Regulations.

## SITE PLANNING (REFER TO SECTION 6.0 OF THE REGULATIONS)

Before land is acquired for a mobile home development, the local health authority should be contacted concerning the suitability of the proposed site with reference to the requirements of the State Board of Health Regulations, i.e., water supply, sewage disposal, insect breeding, or objectionable odors or noise. Other local agencies such as zoning or planning commissions should also be consulted.

### Mobile Home Lots

It is recommended that a single-unit mobile home stand, which is the foundation provided for the mobile home, occupy a maximum area of one-third of the respective lot area. The accumulated floor area of the mobile home and its accessory structures should not exceed two-thirds of the total area of the lot. For the double-wide units, it is also recommended that the mobile home stand occupy a maximum area of one-third of the total lot area. For such a unit, the minimum lot area should contain 4,500 square feet.

These lot requirements are recommended to ensure required clearances between the mobile homes and other structures while easily accommodating the units of various sizes and their appurtenances. Other advantages of these lot requirements are that they facilitate later changes, such as the addition of carports or other accessory structures to mobile homes, and they also provide protection against premature obsolescence of the mobile home development.

### Mobile Home Stand

A stand must be provided on every mobile home lot to accommodate the mobile home and its attached accessory structures. The stand should provide an adequate foundation and anchoring facilities to secure the mobile home against any accidental movement.

The mobile home stand should be graded to obtain adequate surface drainage. This can be achieved by using either a crown or a cross gradient. The grade of the stand and its access way also should be such that it permits easy placement of the mobile home.

The material used in constructing the stand should be durable and capable of supporting the expected load, regardless of the weather. Reinforced concrete runways are often used to support mobile homes, but well-compacted gravel and bituminous concrete materials also are suitable when properly used.

As mobile homes now produced vary in size and shape, the stands should be individually designed to fit the dimensions of the mobile homes that will be accommodated. Consideration also should be given to the fact that many owners of mobile homes may later want to add carports or other accessory structures. If future additions are anticipated, the stand should be so located on the mobile home lot that the required clearances can be maintained between the mobile home and other structures.

It is strongly recommended that some means be provided at each stand to anchor mobile homes and secure them against forces exerted by the wind. Anchors, such as cast-in-place concrete "dead men", eyelets imbedded in concrete, screw augers, or arrow-head anchors should be used since few mobile homes are permanently fastened to the foundation. Anchors should be provided at least at each corner of the mobile home, and each anchor should be able to withstand a tension force of at least 4,800 pounds. The cable or other device connecting the mobile home and anchor should, of course, also be able to withstand a tension of at least 4,800 pounds.

Patios are frequently constructed as an integral part of the mobile home stand. The patio area provides useful outdoor living space for the occupants of mobile homes, and it also can be utilized for future additions to, or expansions of, the mobile home.

Often the construction of the patio is delayed until after the mobile home is placed in order to best fit the patio to the design of the mobile home.

#### Roads, Parking Facilities and Walkways

All roads in mobile home developments should provide for convenient vehicular circulation. Pavements should be of adequate width to accommodate anticipated parking and traffic loads.

The proper design of street intersections is an important safety consideration. Within 100 feet of intersections, streets should be approximately at right angles. Street intersections should be at least 150 feet apart, and the intersection of more than two streets at one point should be avoided.

Street grades should not be excessive, especially at intersections. It is suggested that grades be less than 8 percent whenever possible; however, short runs of up to 12 percent can be used if necessary. All streets should be provided with a smooth, hard, and dense surface that is properly drained and durable under normal use and weather conditions.

Offstreet parking, in the form of parking bays or individual parking spaces on each lot, shall be provided to reduce traffic hazards and improve the appearance of the mobile home development. Each mobile home lot should be designed to provide off-street parking for two automobiles. Parking may be in tandem.

All mobile home developments shall be provided with walkways where pedestrian traffic is expected to be concentrated, such as around recreation, management or service areas, and between individual mobile homes. It is recommended that these common walks be at least 3 1/2 feet wide.

Walks also shall be provided on each individual lot to connect the mobile home with a common walk,

street or other paved surface. Such walks should be at least 2 feet wide.

#### WATER SUPPLY (SECTION 7.0 OF THE REGULATIONS)

An adequate and safe supply of water under pressure shall be provided to each mobile home lot. The source, treatment and distribution system shall be constructed and operated in accordance with the rules and regulations of the State Department of Health. Records should be kept of the location of water lines, valves, meters, connections and other appurtenances to facilitate repairs or inspections when necessary.

When feasible, water shall be obtained from an approved public water supply system in order to obtain the advantages of qualified supervision, which provides added assurance that the quality and quantity of water will be adequate at all times for domestic and firefighting purposes. Where public water supply systems are not available within a reasonable distance for extension to a mobile home development, the best available private water supply source should be developed.

All wells, springs, reservoirs, treatment and storage facilities and distribution systems shall be constructed in accordance with the publications, EW-98, "Water Supply Regulations"; EW-99, "Design Standards for Public Water Supply Systems"; and EG-6, "Permit Procedures and Design Requirements for Small Sewage and Water Systems", issued by the State Department of Health.

#### Riser Pipes

The location of the water riser pipe on the stand is of great importance. Two principles should be carefully considered. First, a location should be selected that is as close as possible to the service connection of the mobile home. This reduces long service runs, long heater tapes, and resultant high electric bills

and waterline freezing. Second, there shall be a safe clearance (10 ft. minimum) between the water riser pipes and the sewer riser pipes. The ASNI Standard for Mobile Homes, A119.1-1971, specifies that the water inlet should be located as near as possible to a point 30 feet from the front of the mobile home and on the left (road side) of the center line. A good location for the water riser pipe is approximately 56 inches from the centerline of the stand, measured across the mobile home stand, and 30 feet from the front edge of the stand. The front edge of the stand should coincide with the front wall of the mobile home.

The water service connection must utilize a riser pipe of at least 3/4" diameter, terminating at least 4 inches above the ground surface, surrounded and supported by sand backfill, and protected against freezing. The ground surface around the riser pipe should be graded so that it diverts surface drainage away from the connection.

A service box with a shutoff valve should be located in a convenient and accessible place near the riser pipe. The shutoff valve should be installed below the frostline. Stop and waste valves shall not be installed in an underground service line; a stop and waste valve is any valve that permits drainage through a port or drain hole provided in the valve.

The riser pipe outlet should be threaded so that a screw connection can be made between the outlet and the mobile home water piping system, and the outlet shall be plugged or capped when not in use. Each water service connection also should have a shutoff valve and a non-freezing wall hydrant located on the water pipe outlet of the mobile home.

Flexible metallic tubing, such as copper, is suggested for connecting the mobile home to the riser pipe because it provides an effective method of electrically grounding the mobile home to a metallic

water supply system, and it also facilitates the use of electrical heater tapes, which can be used during cold weather to effectively control freezing.

#### Distribution and Storage

To meet ordinary domestic needs, the water distribution system must supply water at a minimum flow pressure of 20 pounds per square inch at all service connections. When pressure in the system is likely to exceed 80 pounds per square inch, a water pressure reducing valve should be installed on the central supply line to the development to protect the water piping system of the individual mobile home. The pipe sizing and other design features of the system shall be based upon the estimated maximum instantaneous water demand rather than upon the average daily demand.

If the domestic water system is to supply sufficient water for fire-fighting purposes in accordance with requirements of the National Fire Protection Association, it will be necessary to use greater design values and quantity of flow.

Water storage facilities shall be provided when the water supply system cannot meet peak demands. If the rate of supply from a private well, public main, or other means of supply is not greater than or equal to the peak demand, storage facilities shall be included in the distribution system.

All distribution lines and storage facilities shall be disinfected in accordance with the Regulations of the State Department of Health prior to use.

#### SEWAGE COLLECTION AND TREATMENT (REFER TO SECTION 8.0 OF THE REGULATIONS)

An adequate and safe sewerage system shall be provided in all mobile home developments for conveying and disposing of sewage from mobile homes, service buildings and other development facilities. The sewerage system

shall be designed, constructed, and maintained in accordance with all applicable regulations and the requirements of the State Department of Health.

Wherever possible, the sewerage system of a mobile home development shall be connected to a public sewerage system. If public sewers are not available within a reasonable distance of the mobile home development, adequate treatment facilities shall be installed to dispose of the sewage. Proposed sewage disposal facilities must be approved by the State Department of Health prior to construction with the exception that approval of septic tank, soil absorption sewage disposal systems of less than 1,500 gallons capacity shall be obtained from the local health department. The effluent from such treatment facilities shall be discharged only as permitted by the State Department of Health.

Sewage collection and treatment systems for mobile home parks shall be designed and constructed in accordance with the publication, "Permit Procedures and Design Requirements for Small Sewage and Water Systems", regulations, specifications and instructions issued by the State Department of Health.

#### Riser Pipes

A sewer service connection shall be provided at each mobile home lot. The sewer riser pipe should be located so that it provides a nearly vertical connection between the riser pipe and the drainage outlet of the mobile home. The ANSI Standard for Mobile Homes, A119.1-1971 specifies that the drain outlet shall be 3 inches in diameter and shall be located in the rear half section of the mobile home. The location of the sewer inlet on the stand should be as close as possible to the drain outlet on the mobile home. In order to achieve this, it is recommended that the riser pipe be located under the mobile home. A good location is at the center line of the stand and 40 feet from the front edge of the stand. This location will serve most of the mobile homes now being built.

The sewer service connection utilizes a riser pipe that is at least 4 inches in diameter and that terminates at least 4 inches above the ground surface. The tubing or piping connecting the drain outlet of the mobile home and the sewer riser pipe should be non-collapsible, semi-rigid, and 3 inches in diameter. The line connecting the drain outlet and sewer riser shall be sloped at not less than 1/4 inch per foot. A reducer from 4 to 3 inches should connect the bell end of the 4 inch riser pipe with the 3 inch semi-rigid tubing or piping. All materials used for sewer connections should be corrosion resistant, non-absorbent and durable, with a smooth surface. No subsurface trap is necessary in the sewer riser pipe since the plumbing fixtures in mobile homes are adequately trapped and vented.

Other types of sewer connections, such as those that utilize a threaded type connection, are acceptable if they are watertight, airtight and otherwise equivalent to the recommended connection. When the sewer connection is not in use, the bell of the riser pipe shall be capped with an airtight cap or plug. This is necessary to exclude rodents and other objects and to prevent the escape of odors.

#### Storm Water Drainage

The installation of a storm water drainage system will improve the drainage of any site that does not have good natural drainage. Separate systems shall be provided for storm water and sewage.

The storm sewer system should be sized and designed according to standard engineering practice. Storm sewers should be laid on sufficient grade to provide a minimum velocity of 2.5 feet per second when flowing full.

MANAGEMENT BUILDINGS AND COMMUNITY SERVICE FACILITIES  
(REFER TO SECTION 9.0 OF THE REGULATIONS)

Management and Service Buildings

Every mobile home development should be provided with a service building containing emergency sanitary facilities consisting of at least one lavatory and one flush toilet for each 100 mobile home lots. Where feasible, the consolidation of sanitary, laundry, management, and other service facilities in a single building and location is recommended if the single location will adequately serve all mobile home lots. Consolidation is preferable for efficient construction, use, and maintenance of all facilities.

Service buildings and other development structures, when provided, should conform to the local, state and national codes and regulations. All development buildings shall be of permanent construction, with a weather-resistant exterior finish and an interior finish of moisture-resistant material that will stand frequent washing and cleaning.

All rooms containing plumbing fixtures shall have floors that are impervious to water, easily cleaned, and sloped to floor drains connected to the sewerage system. The floors and the plumbing fixtures should be maintained in a sanitary condition at all times by periodic washing and disinfecting. Walls and partitions around toilets, lavatory, and other plumbing fixtures should be constructed of nonabsorbent, water-proof material, or covered with moisture-resistant material.

The rooms of all buildings should be well ventilated and all exterior openings should be covered with screen having 16 meshes per inch. Rooms containing sanitary or laundry facilities should be provided with at least one openable window or skylight facing directly outdoors, or a mechanical device that will adequately ventilate the room. Positive mechanical ventilation is usually preferred because openable windows and skylights are not dependable as a means of ventilating these

spaces. There is also the problem of windows remaining closed during inclement weather.

The minimum total window area, measured between stops, should be 10 percent of the floor area of the room. When design permits, windows should be placed high in the wall and in more than one wall if possible.

Service buildings shall have heating facilities capable of maintaining a temperature of 70°F. and capable of heating sufficient hot water for all lavatory and laundry fixtures.

Toilet and laundry rooms should be well lighted at all times since adequate lighting will encourage cleanliness. Daylight should be used to supplement lighting requirements whenever possible. Men's and women's toilet rooms shall be distinctly marked and separated by a sound-resistant wall. A screen or wall should prevent direct view of toilet compartments when the exterior doors are open. Each water closet shall be in a separate compartment equipped with a self-closing door.

The owner or operator of a mobile home development should provide additional facilities in the service building in accordance with anticipated demand for such facilities. Laundry equipment, icemaking machines, and public telephones are extra conveniences that development residents will appreciate.

When considering the installation of laundry facilities within a mobile home development, it should first be determined that such equipment will have sufficient use, since unused facilities can create economic and maintenance problems for the development owner or operator. Factors that should be evaluated include the proximity of coin-operated public laundries or commercial laundries, and the number of development residents who will have automatic washers installed in their mobile homes.

### Service Areas

Where areas for the outdoor drying of clothes are necessary, it has been found that approximately 2,500 square feet per 100 mobile home lots is adequate with rotated use. It may be desirable to locate the drying yard near the service or laundry building, if provided, and as far as possible from roadways or traveled areas. It has also been found practical to provide clothes-drying facilities on the individual mobile home lots, provided that the drying units are standardized and are properly located and installed. Where the clothes drying facilities are permitted on the individual mobile home lots, it is suggested that they be provided as part of the basic facilities, to assure that the same type of unit, located in the same general area of each mobile home lot, is used throughout the development. Umbrella-type lines in permanent sockets are recommended. The use of individual drying facilities also requires that the owner or operator develop and enforce rules that permit clothes drying only on the facilities provided. All clothes-drying areas, whether centrally located near the service building or on the individual mobile home lot, should be adequately screened from view so that they do not detract from the appearance of the mobile home park and are not objectionable to residents of adjacent property.

If desired, car wash and other general purpose facilities can be provided as a service to residents of the mobile home development. Any such facilities should be properly constructed and preferably, screened from view.

### Recreation Areas

Mobile home developments that accommodate 25 or more mobile homes should be provided with at least one easily accessible recreation area. When several different age groups are to be provided for, it may be desirable to have two or more separate areas to serve the various interests.

For safety reasons, recreation areas always should be located where they are free of traffic hazards. It may be also desirable to provide some sort of buffer zone around the area, such as trees, bushes, or other vegetative growth. If shrubbery is planted immediately adjacent to the street, a fence should be installed to prevent children, who are obscured from the motorists' vision, from darting into the roadway.

A recreation area can be located adjacent to recreation or service buildings, if provided, for efficient construction, use, and maintenance of both the area and the structure. The minimum area for each recreational space should be two-thirds of an acre, and the total recreational area should be not less than 8 percent of the gross area of the site. Swimming pools, recreation buildings, and areas for child play can be considered as fulfilling part of the total area requirement.

Swimming pools shall be constructed and operated in accordance with all applicable State Department of Health requirements and regulations.

#### ELECTRICAL DISTRIBUTION (REFER TO SECTION 10.0 OF THE REGULATIONS)

Preferably, distribution lines should be installed in underground conduits. Underground lines provide a much neater appearance and permit more efficient use of available land than do overhead lines. Underground lines should be placed at least 18 inches below the ground surface and at least 1 foot radial distance from water, sewer, gas, or communication lines.

If overhead power lines are installed, they should be at least 18 feet above streets or roadways. A minimum horizontal clearance of at least 3 feet is necessary between overhead lines and any structure. Electrical systems of mobile home developments should be calculated on the basis of at least 16,000 watts (at 120/240 volts) for each mobile home. Since all mobile homes

however, do not use the maximum amount of electricity at once, demand factors should be checked with the power company supplying the mobile home park.

A properly grounded, weatherproof receptacle capable of supplying at least 100 ampere current at 115/230 volts should be provided for each mobile home lot. Those mobile homes, however, that are equipped with air conditioners, automatic washers and dryers, or other power consuming appliances may need 100 ampere current at 120/240 volts. The attachment plug, connectors, and mating receptacles should be of a 3-pole, 4-wire grounding type complying with ANSI C73.1.

The point of the electrical connection for the mobile home should be within the area of the mobile home stand and approximately 40 feet from the front of the stand.

Circuit breakers or other overcurrent protective devices and disconnecting switches should be provided in a convenient location for each mobile home to be served. The outlet receptacles should be within 25 feet of the overcurrent protective devices in the mobile home.

All exposed noncurrent carrying metal parts of mobile homes and equipment should be grounded by means of an approved grounding conductor run with branch circuit conductors or other approved method of grounded metallic wiring. The neutral conductor should not be used as an equipment ground for mobile homes or other equipment.

### Lighting

Adequate lighting should be provided for all streets, walkways, buildings, and other facilities subject to nighttime use. Illumination should be provided in accordance with local and power company requirements; where none exist, the recommendations in the Standard Lighting Guide of the Illuminating Engineering Society may be applied.

Because of the safety hazards associated with high density developments, such as mobile home developments, it is recommended that an average illumination level of at least 0.6 foot candles and a minimum illumination level of 0.1 foot candle be maintained on all streets. Potentially hazardous locations, such as street intersections and steps or stepped ramps, should be individually illuminated, with a minimum level of 0.3 foot candles.

#### SOLID WASTE (REFER TO SECTION 11.0 OF THE REGULATIONS)

Generally, the solid waste produced in a mobile home development will be about the same as that produced in any other residential area. The composition of solid waste may vary, but it consists mostly of paper products and food waste (garbage).

Garbage can be effectively disposed of by grinding it in a garbage grinder and then discharging it into a sanitary sewer. If grinding is not used, another method of handling the garbage is that of draining and wrapping it in several thicknesses of newspaper. This practice prevents fly production, keeps the containers clean, reduces odor production, and prolongs the life of containers. When local regulations restrict the grinding or wrapping of garbage, extra care is necessary in storing it. The area around containers should be kept free from waste material, and containers should be washed regularly to control odors and fly breeding.

The other components of solid waste, often referred to as rubbish, can usually be placed in the storage containers without special treatment.

Bulky rubbish, such as tree and shrub trimmings, should be tied in bundles that are easy to handle and small enough to load easily in the collection truck.

#### Containers

All solid waste shall be stored in durable, rust-resistant, nonabsorbent, watertight, and rodent proof

containers that are covered with close fitting lids and provided with suitable handles. They shall be maintained in a clean condition and kept in good repair. Sufficient capacity shall be provided to prevent any container from overflowing between collections. Generally, each mobile home will require from 5 to 10 gallons of storage capacity per day for solid waste.

Paper or plastic sacks designed specifically for storage of solid waste may be used at individual mobile home sites if they are at all times properly attached to a holder that keeps them off the ground and covered with a flytight lid. All filled sacks should be stored in rodent proof areas and preferably, deposited immediately into a large rodent proof container; or collection should be frequent enough to prevent the accumulation of filled bags.

Unless local collection regulations or disposal methods require the use of separate containers, garbage and rubbish may be stored in the same container. Combined solid waste collection is generally recommended because there is little to be gained by separating garbage from rubbish.

Where combined solid waste or rubbish is collected, containers with a capacity of about 30 gallons are recommended to provide adequate capacity and yet be small enough for easy handling by collectors. If garbage is collected separately, it can be stored in a container of about 10 gallon capacity.

The life of containers can be prolonged and the sanitary condition more easily maintained by lining them with a disposable paper or plastic bag as protection against excessive soiling and rusting. Spraying of suitable insecticides and sanitizing chemicals may be necessary in and around the containers to reduce odors and fly production during warm weather.

Preferably, each mobile home lot should have its own solid waste storage facilities; however, the same

storage facilities can be used for adjacent lots so long as ample capacity is provided. It is also possible to use bulk containers to serve several mobile homes and thus reduce the storage area required for solid waste. Bulk containers should have lids that are easily opened and that automatically return to a closed position. They should be watertight and rodent proof, and should be installed in a manner that does not present a safety hazard, especially for children.

The location of refuse containers on the mobile home lot can be varied, but it is important that permanent locations be selected and satisfactory racks or stands provided to minimize spillage and container damage and deterioration. Containers should have at least 12 inches of clear space beneath them to facilitate cleaning and to prevent rodent harborage.

It is advisable that a screen or enclosure be placed around the refuse container storage area to prevent direct viewing of the containers and access to them by dogs or other animals. Screens of concrete or masonry block can be constructed so that they are both decorative and durable. It is important that the enclosure be easy to clean and easily accessible to the collectors.

### Collection

All solid waste that contains garbage shall be collected at least once weekly. Frequent collection service requires less provision for storage capacity. Where collection service is provided by municipal or private agencies, it should be utilized to insure regular removal of the solid waste.

Routes of collection vehicles should be planned so as to create the least amount of congestion and traffic hazard. The strength of the roadway surface also should be considered when planning routes since some collection trucks may be heavy enough to damage low strength roads.

INSECT AND RODENT CONTROL (REFER TO SECTION 12.0 OF THE REGULATIONS)

The control of insects and rodents in mobile home developments is necessary to protect the health and property of the residents. Insects and rodents are capable of transmitting diseases to man and other animals by bites or by indirect contact, and they also may cause property damage, including damage to vegetation by gnawing or chewing.

Small localized infestations of insects or rodents can often be controlled by the owner or operator of the mobile home development. Wide spread infestations, however, should be handled by a competent pest control operator, especially if large scale chemical treatment procedures are used.

The best method of controlling insects and rodents in mobile home developments is by using environmental sanitation procedures that eliminate food sources and places of harborage used by these pests. A proper environment will discourage the infestation and breeding of insects and rodents. The use of good environmental sanitation procedures will, in most instances, provide the most effective control and, over a period of years, it is more economical than repetitive chemical control measures, which should be used only if adequate control cannot otherwise be maintained.

When pesticides are used, proper precautions are always necessary to assure the safety of humans, domestic pets, and desirable wildlife. Many pesticides are potentially very hazardous and should be used only by trained pest control workers. Untrained persons using pesticides should use them only for small scale treatments, and any instructions for use on the labeling of the package should be followed carefully. When large scale applications of pesticides are to be made in a mobile home development, a competent pest control operator should be consulted.

### Mosquito Control

Mobile home developments shall be kept free of cans, jars, buckets, old tires, and other objects that may hold water and provide breeding places for mosquitoes. All depressions in which water may collect shall be drained or filled to eliminate potential breeding areas. Any type of vegetation promoting mosquito harborage shall be treated or removed.

For chemical treatment, No. 2 fuel oil or kerosene applied at a rate of about 5 to 30 gallons per acre is an effective larvicide for use in low, wet areas and on pools of standing water.

### Fly Control

Attempts at chemical control of flies are seldom effective when not accompanied by proper environmental sanitation procedures. Flies shall not be allowed access to organic matter, such as garbage, since they reproduce rapidly in this material. Garbage shall be wrapped in paper and kept in proper containers provided with tight fitting lids. Garbage containers shall be replaced or repaired when so damaged that their lids do not fit tightly enough to prevent the entrance of flies. All containers shall be washed frequently and securely fastened on racks or stands to prevent overturning. The area around containers should not become littered with garbage or saturated with liquid waste from garbage. Droppings from dogs and other animals must be removed or covered with dirt or other suitable material.

### Rodent Control

The most effective way to prevent or eliminate rodent infestation is to destroy places of harborage and remove food sources that attract and sustain rats. Harborage places can be eliminated by the orderly stacking of such materials as lumber, pipe, or sheet metal at least 12 to 18 inches off the ground. Useless

scrap material or rubbish should be promptly disposed of. Storage and utility buildings, and all other types of buildings as well shall be rat-proofed.

In food storage areas, such as might be found in recreation building snack bars or other food service facilities, all food supplies shall be stored with at least a 12 to 18 inch clear space beneath them. Periodic inspections should be made of food supplies to determine whether rodents may have gained access to them.

Rodents can be controlled by trapping, the use of rodenticides, or both. Trapping has an advantage in that when the rodent is caught it can be removed from the premises without the odor problem that sometimes results when a poisoned animal dies in its place of harborage. Trapping is not as effective as poisoning, however.

#### Cockroach Control

The best method for the control of cockroaches is general cleanliness and tidyness. Food bits and crumbs should not be allowed to accumulate on floors, in cracks or crevices, or in other places accessible to roaches. Rags, books, and other objects should not be stored in dark, damp places or stored in a disorderly manner.

#### Flea, Tick and Chigger Control

Grass should be cut frequently, and weeds should be eliminated in order to reduce food sources and places of harborage for insects and the mammal hosts of these pests.

FUEL SUPPLY AND STORAGE (REFER TO SECTION 13.0 OF THE REGULATIONS)

All handling or storage of natural gas, liquified petroleum gas (LPG), fuel oil, or other flammable liquids or gases should conform to all applicable regulations; where none exist, the standards of the ANSI and the National Fire Protection Association (NFPA) can be applied. For details, see the ordinance that follows these guidelines.

Central storage and underground distribution of fuel is recommended to decrease the frequency of fuel deliveries, eliminate the unsightliness of individual fuel storage facilities, and provide more free usable space on each lot. All piping in any fuel distribution system should be composed of suitable material, such as steel, wrought iron, threaded copper, or brass; it should be permanently installed and fastened in place. All fuel service lines to mobile home lots should be provided with a shutoff valve upstream from the service outlet. The service outlet should be capped when not in use.

If LPG or fuel oil containers are installed on mobile home lots, they should be securely fastened in place to prevent overturning. No LPG or fuel oil container shall be placed inside or beneath any mobile home, storage cabinet, carport, or any other structure unless such arrangement is approved by the appropriate authority. Containers of fuel oil shall be at least 5 feet from any mobile home exit.

Natural gas risers shall be steel coated pipe. Plastic pipe shall be used for underground service only. Plastic pipe used shall be ASTM 2513, approved for gas operation.

In the event the mobile home park operator receives his gas service at a master meter and supplies the park residents from the master meter, the gas supply system within the park must be constructed in accordance with

the Public Service Commission "Minimum Safety Standards for Transportation of Natural and other Gas by Pipelines". When supplying gas from a master meter, the mobile home park operator must file with the local health department a statement from the company supplying gas to his park, certifying that the gas system within the park has been inspected and meets the safety standards mentioned above. This certification must be filed prior to issuance of a permit to operate.

#### FIRE PROTECTION (REFER TO SECTION 14.0 OF THE REGULATIONS)

If a water supply of sufficient quantity is available, fire hydrants should be installed within 500 feet of all mobile homes, service buildings, or other structures. The hydrants or other water supply facilities should be so arranged as to permit the operation of a minimum of two 1 1/2 inch hose streams on any fire that might occur. The water supply system serving the hydrants should be able to provide a delivery of at least 75 gallons per minute at each of two nozzles, held 4 feet above the ground, at a flowing pressure of at least 30 pounds per square inch at the highest elevation in the area served.

If hydrants are not installed, then equivalent protection, as determined by the local fire protection authority or National Fire Protection Association standards, should be provided. Fires should be allowed only in stoves, incinerators, and other equipment specifically designed for such purposes; open fires should never be permitted. Mobile home developments should be kept free of dry brush, weeds, and combustible refuse.

At least one portable fire appliance, such as Class A extinguishers (soda-acid, pump tank, anti-freeze), should be installed in service buildings and other buildings to fight fires in ordinary combustible materials. These extinguishers should be located so that it will not be necessary to travel more than 100 feet from any mobile home to reach the nearest extinguisher.

In lieu of this extinguisher, the development may wish to provide valved water outlets with a garden hose of a type usable in all weather, permanently attached, or in cabinets immediately adjacent to the hose connection, and so located that any part of any mobile home can be reached with a garden hose stream.

One or more approved extinguishers of a type suitable for flammable liquid, Class B, or electrical fires, Class C, in accordance with NFPS Standards should be so located that it will not be necessary to travel more than 100 feet to reach the nearest extinguisher.

Fire and safety hazards have been associated with mobile homes containing heating equipment that is inadequately vented, often because of improper construction or installation. Such equipment presents not only the danger of fire, but also the danger of asphyxiation from accumulation of carbon monoxide gas.

The owner or operator of the mobile home park should not permit residents to use heating or cooking equipment or systems that appear to be hazardous, such as portable fuel burning equipment in unvented, confined enclosures. To assure adequate safety, all equipment and systems should be constructed in accordance with the ANSI, Standard for Mobile Homes A119.1-1971.

It is recommended that each mobile home owner be encouraged to provide for his own protection a J.L. approved portable fire extinguisher suitable for handling fires in the home.

#### PREPARATION OF PLANS

In the early planning stage and prior to construction, layout plans of proposed mobile home developments should be prepared and submitted for review and approval to zoning and planning authorities and to the State Department of Health prior to construction. An early review is desirable so that suggested changes can be

easily incorporated before plans are solidified. A description of the location of the site with regard to highways, streets, and landmarks should accompany the layout plans.

The detailed construction plans should show; the area and dimensions of the site; the number, location, and dimensions of all mobile home lots, the location and width of roadways, automobile parking facilities, and walkways; the location of service buildings and any other proposed structures; plans and specifications for the water supply, sewage disposal, and solid waste disposal facilities- including the location of water lines, sewer lines, and riser pipes; plans and specifications for all buildings constructed, or to be constructed, within the mobile home development; and the location and details of lighting, electrical and fuel systems. Size of plan sheets shall be as set forth in Part I, Section 3 of EG-6 Permit Procedures And Design Requirements issued by the State Department of Health.

Depending on the extent of the facilities to be provided, additional plans may be required to show the location of fire hydrants; plans and specifications for swimming pools, other special recreational facilities, and special landscaping fuel oil and LP gas storage facilities; and details of service facilities, such as carwash or clothes-drying areas.

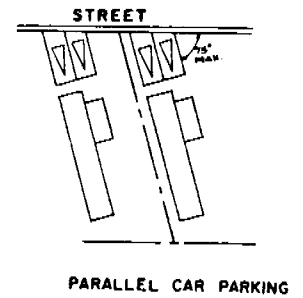
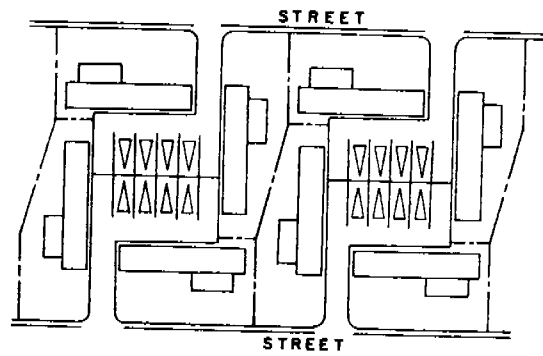
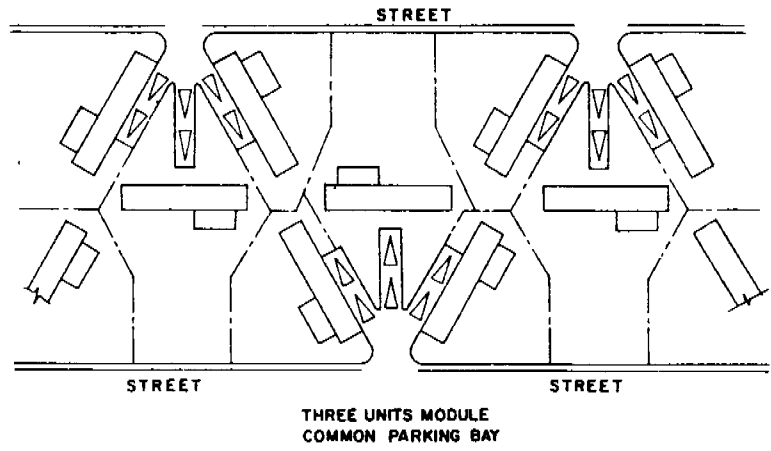
Design information, details and requirements of the State Health Department for sewer and water systems are contained in the publication, "Permit Procedure and Design Requirements for Small Sewage And Water Systems" issued by the State Department of Health.

#### APPLICATION

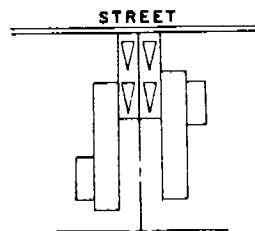
A construction and installation permit is required prior to construction or installation of a mobile home park or any part thereof (Section 4.0 of the Regulations). Application forms may be obtained from your local health department.

In addition to the application and plan information required for the mobile home park itself, applications are required for the construction of sewage collection and treatment systems and water supply and distribution systems. Details of application, design and plan requirements are contained in the publication "Permit Procedure and Design Requirements for Small Sewage And Water Systems" issued by the State Department of Health.

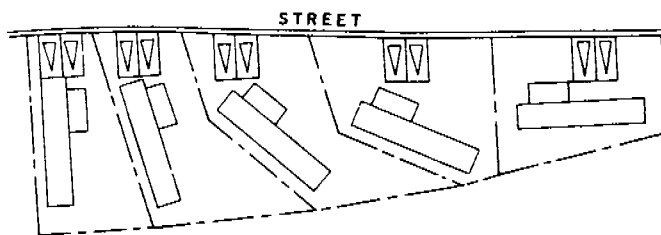
Applications and plans for mobile home parks of six (6) or less spaces shall be forwarded to the State Department of Health through the local health department.



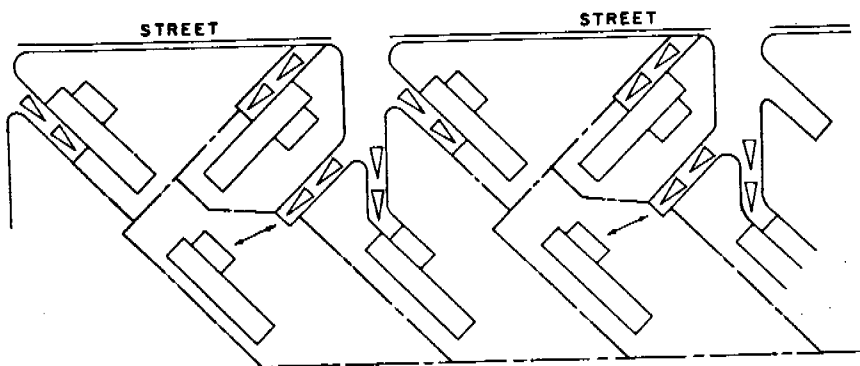
TYPICAL MOBILE HOME PARK ARRANGEMENTS



BACK TO BACK COMBINED  
UTILITY CORE & CAR PARKING

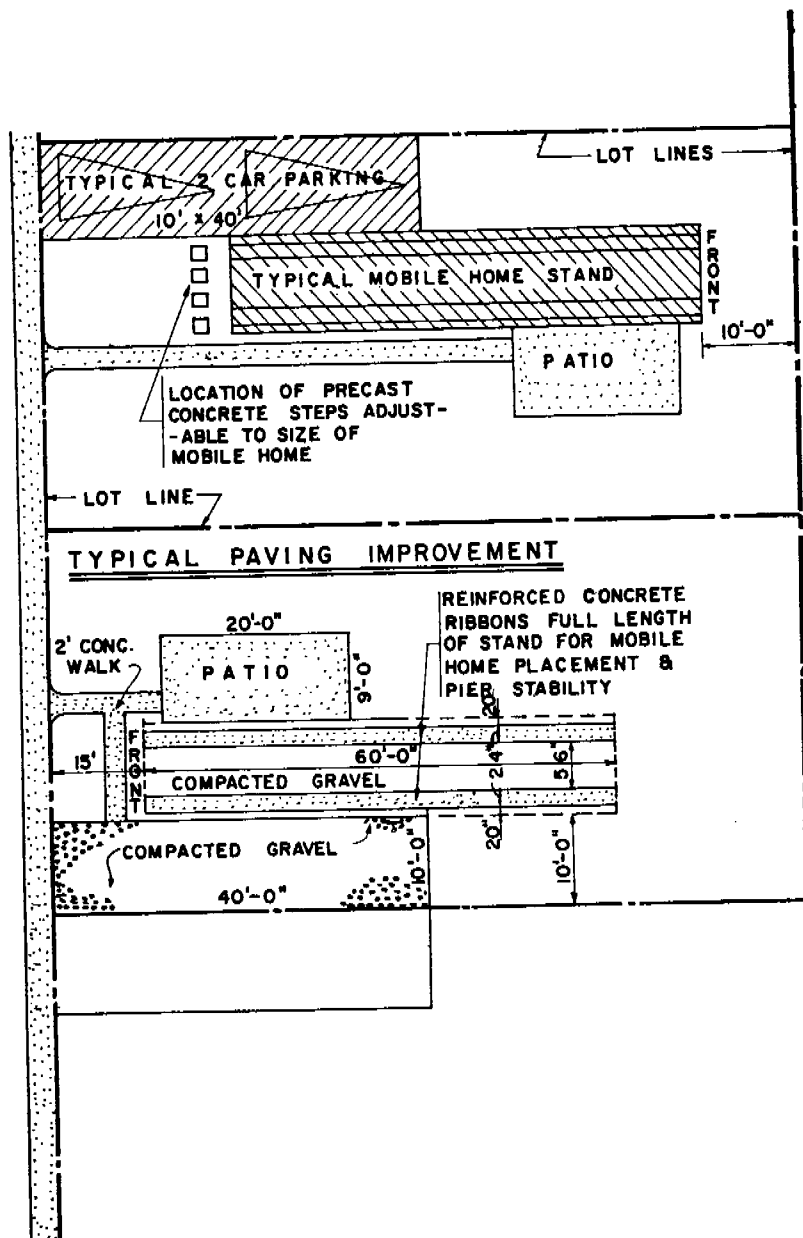


TRANSITION OF MOBILE HOME STAND

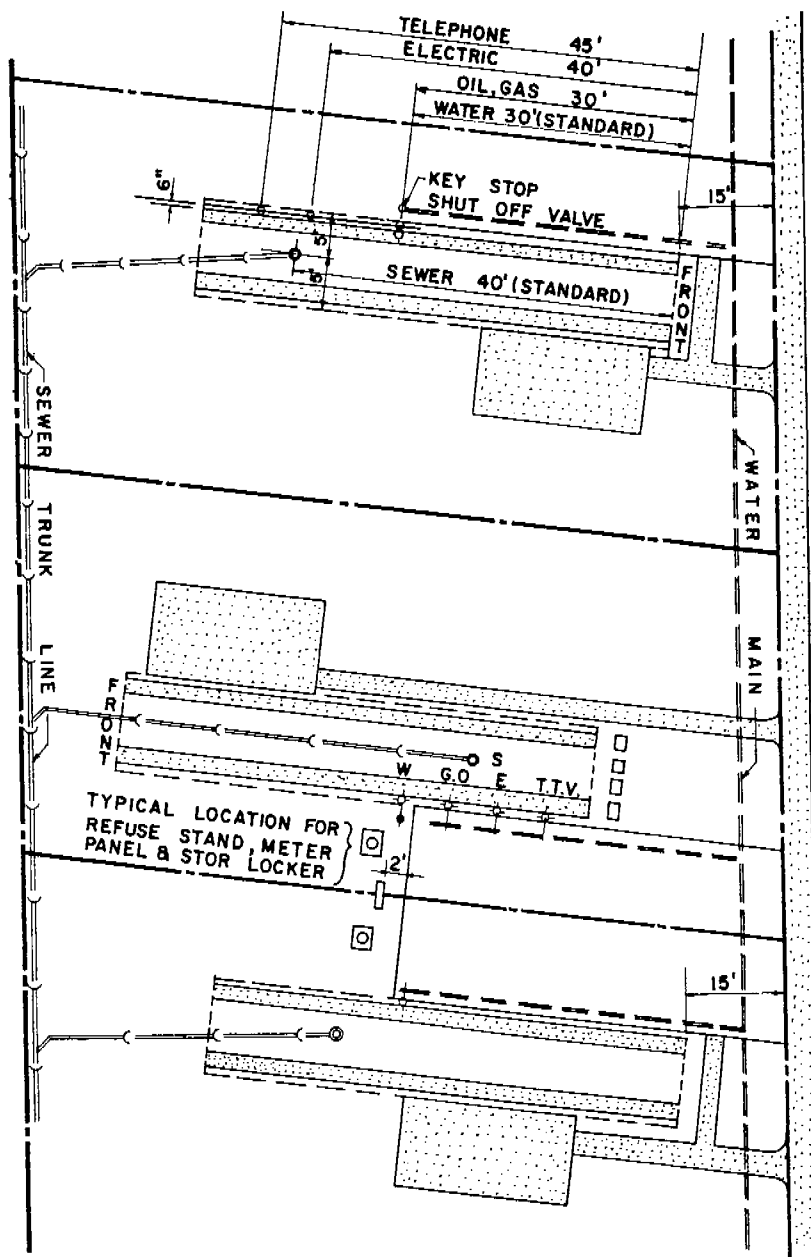


VARIATION OF REAR LOT ARRANGEMENT.

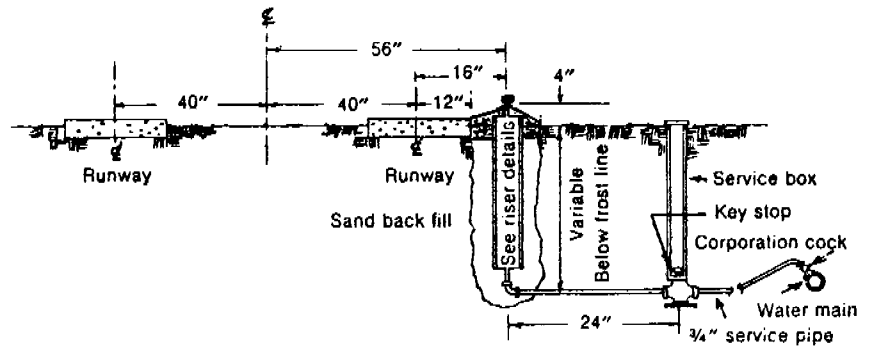
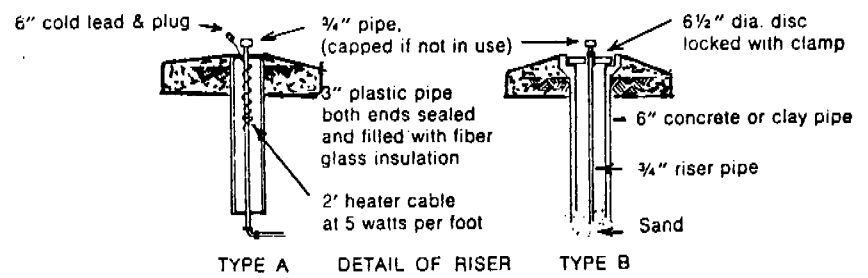
# TYPICAL MOBILE HOME PARK ARRANGEMENTS



TYPICAL LOCATION OF MOBILE HOME ON LOT  
(Distances from Lot Lines are Recommended)



TYPICAL UTILITY LOCATION



TYPICAL MOBILE HOME WATER RISER AND CONNECTION



WEST VIRGINIA INTERPRETIVE RULES  
BOARD OF HEALTH

Chapter 16-1  
Series 41  
(1983)

Design, Information and Procedural Manual  
for Mobile Home Parks

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WEST VIRGINIA INTERPRETIVE RULES  
BOARD OF HEALTH

Chapter 16-1  
Series 41  
(1983)

Subject: Design, Information and Procedural Manual for Mobile Home Parks

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Section 1. General

1.1. Scope - These interpretive rules are intended to supplement Mobile Home Park Regulations, adopted by the West Virginia board of health, effective October 1, 1971, by providing guidelines, requirements and standards for the development of a mobile home park.

The various sections of this publication are referenced directly to the pertinent section of the Mobile Home Park Regulations.

1.2. Authority - These interpretive rules are issued under the authority of and are related to Chapter 16, Article 1, Section 7 of the West Virginia Code of 1931, as amended.

1.3. Filing Date - These interpretive rules were filed on the 25th day of August 1971, in the Secretary of State's office.

1.4. Effective Date - These interpretive rules became effective on the 30th day of December 1982.

1.5. Refiling Date - These interpretive rules were refiled pursuant to Chapter 29A, Article 2, Section 5 of the West Virginia Code of 1931, as amended on the 30th day of December 1982, in the Secretary of State's office.

Section 2. Site Planning (Refer to Section 7 of the Mobile Home Regulations)

2.1. Before land is acquired for a mobile home development, the local health authority should be contacted concerning the suitability of the proposed site with reference to the requirements of the state board of health

regulations, i.e., water supply, sewage disposal, insect breeding, or objectionable odors or noise. Other local agencies such as zoning or planning commissions should also be consulted.

2.2. Mobile Home Lots

2.2.1. It is recommended that a single-unit mobile home stand, which is the foundation provided for the mobile home, occupy a maximum area of one-third of the respective lot area. The accumulated floor area of the mobile home and its accessory structures should not exceed two-thirds of the total area of the lot. For the double-wide units, it is also recommended that the mobile home stand occupy a maximum area of one-third of the total lot area. For such a unit, the minimum lot area should contain 4,500 square feet.

2.2.2. These lot requirements are recommended to ensure required clearances between the mobile homes and other structures while easily accommodating the units of various sizes and their appurtenances. Other advantages of these lot requirements are that they facilitate later changes, such as the addition of carports or other accessory structures to mobile homes, and they also provide protection against premature obsolescence of the mobile home development.

2.3. Mobile Home Stand

2.3.1. A stand must be provided on every mobile home lot to accommodate the mobile home and its attached accessory structures. The stand should provide an adequate foundation and anchoring facilities to secure the mobile home against any accidental movement.

2.3.2. The mobile home stand should be graded to obtain adequate

surface drainage. This can be achieved by using either a crown or a cross gradient. The grade of the stand and its access way also should be such that it permits easy placement of the mobile home.

2.3.3. The material used in constructing the stand should be durable and capable of supporting the expected load, regardless of the weather. Reinforced concrete runways are often used to support mobile homes, but well-compacted gravel and bituminous concrete materials also are suitable when properly used.

2.3.4. As mobile homes now produced vary in size and shape, the stands should be individually designed to fit the dimensions of the mobile homes that will be accommodated. Consideration also should be given to the fact that many owners of mobile homes may later want to add carports or other accessory structures. If future additions are anticipated, the stand should be so located on the mobile home lot that the required clearances can be maintained between the mobile home and other structures.

2.3.5. It is strongly recommended that some means be provided at each stand to anchor mobile homes and secure them against forces exerted by the wind. Anchors, such as cast-in-place concrete "dead men", eyelets imbedded in concrete, screw augers, or arrowhead anchors should be used since few mobile homes are permanently fastened to the foundation. Anchors should be provided at least at each corner of the mobile home, and each anchor should be able to withstand a tension force of at least 4,800 pounds. The cable or other device connecting the mobile home and anchor should, of course, also be able to withstand a tension of at least 4,800 pounds.

2.3.6. Patios are frequently constructed as integral part of the mobile

home stand. The patio area provides useful outdoor living space for the occupants of mobile homes, and it also can be utilized for future additions to, or expansions of, the mobile home. Often the construction of the patio is delayed until after the mobile home is placed in order to best fit the patio to the design of the mobile home.

#### 2.4. Roads, Parking Facilities and Walkways

2.4.1. All roads in mobile home developments should provide for convenient vehicular circulation. Pavements should be of adequate width to accommodate anticipated parking and traffic loads.

2.4.2. The proper design of street intersections is an important safety consideration. Within 100 feet of intersections, streets should be approximately at right angles. Street intersections should be at least 150 feet apart, and the intersection of more than two streets at one point should be avoided.

2.4.3. Street grades should not be excessive, especially at intersections. It is suggested that grades be less than 8 percent whenever possible; however, short runs of up to 12 percent can be used if necessary. All streets should be provided with a smooth, hard, and dense surface that is properly drained and durable under normal use and weather conditions.

2.4.4. Offstreet parking, in the form of parking bays of individual parking spaces on each lot, shall be provided to reduce traffic hazards and improve the appearance of the mobile home development. Each mobile home lot should be designed to provide off-street parking for two automobiles. Parking may be in tandem.

2.4.5. All mobile home developments shall be provided with walkways

where pedestrian traffic is expected to be concentrated, such as around recreation, management or service areas, and between individual mobile homes. It is recommended that these common walks be at least  $3\frac{1}{2}$  feet wide.

2.4.6. Walks also shall be provided on each individual lot to connect the mobile home with a common walk, street or other paved surface. Such walks should be at least 2 feet wide.

Section 3. Water Supply (Section 8 of the Mobile Home Regulations)

3.1. An adequate and safe supply of water under pressure shall be provided to each mobile home lot. The source, treatment and distribution system shall be constructed and operated in accordance with the rules and regulations of the state department of health. Records should be kept of the location of water lines, valves, meters, connections and other appurtenances to facilitate repairs or inspections when necessary.

3.2. When feasible, water shall be obtained from an approved public water supply system in order to obtain the advantages of qualified supervision, which provides added assurance that the quality and quantity of water will be adequate at all times for domestic and firefighting purposes. Where public water supply systems are not available within a reasonable distance for extension to a mobile home development, the best available private water supply source should be developed.

3.3. All wells, springs, reservoirs, treatment and storage facilities and distribution systems shall be constructed in accordance with the publications, EW-98, "Water Supply Regulations"; EW-99, "Design Standards for Public Water Supply Systems"; and EG-6, "Permit Procedures and Design Requirements for Small Sewage and Water Systems, issued by the state department of health.

3.4. Riser Pipes

3.4.1. The location of the water riser pipe on the stand is of great importance. Two principles should be carefully considered. First, a location should be selected that is as close as possible to the service connection of the mobile home. This reduces long service runs, long heater tapes, and resultant high electric bills and waterline freezing. Second, there shall be a safe clearance (10 ft. minimum) between the water riser pipes and the sewer riser pipes. The ANSI Standard for Mobile Homes, All9.1-1971, specifies that the water inlet should be located as near as possible to a point 30 feet from the front of the mobile home and on the left (road side) of the center line. A good location for the water riser pipe is approximately 56 inches from the centerline of the stand, measured across the mobile home stand, and 30 feet from the front edge of the stand. The front edge of the stand should coincide with the front wall of the mobile home.

3.4.2. The water service connection must utilize a riser pipe of at least 3/4" diameter, terminating at least 4 inches above the ground surface, surrounded and supported by sand backfill, and protected against freezing. The ground surface around the riser pipe should be graded so that it diverts surface drainage away from the connection.

3.4.3. A service box with a shutoff valve should be located in a convenient and accessible place near the riser pipe. The shutoff valve should be installed below the frostline. Stop and waste valves shall not be installed in an underground service line; a stop and waste valve is any valve that permits drainage through a port or drain hole provided in the valve.

3.4.4. The riser pipe outlet should be threaded so that a screw connection can be made between the outlet and the mobile home water piping system, and the outlet shall be plugged or capped when not in use. Each water service connection also should have a shutoff valve and a non-freezing wall hydrant located on the water pipe outlet of the mobile home.

3.4.5. Flexible metallic tubing, such as copper, is suggested for connecting the mobile home to the riser pipe because it provides an effective method of electrically grounding the mobile home to a metallic water supply system, and it also facilitates the use of electrical heater tapes, which can be used during cold weather to effectively control freezing.

### 3.5. Distribution and Storage

3.5.1. To meet ordinary domestic needs, the water distribution system must supply water at a minimum flow pressure of 20 pounds per square inch at all service connections. When pressure in the system is likely to exceed 80 pounds per square inch, a water pressure reducing valve should be installed on the central supply line to the development to protect the water piping system of the individual mobile home. The pipe sizing and other design features of the system shall be based upon the estimated maximum instantaneous water demand rather than upon the average daily demand.

3.5.2. If the domestic water system is to supply sufficient water for fire-fighting purposes in accordance with requirements of the national fire protection association, it will be necessary to use greater design values and quantity of flow.

3.5.3. Water storage facilities shall be provided when the water supply system cannot meet peak demands. If the rate of supply from a

private well, public main, or other means of supply is not greater than or equal to the peak demand, storage facilities shall be included in the distribution system.

3.5.4. All distribution lines and storage facilities shall be disinfected in accordance with the regulations of the state department of health prior to use.

Section 4. Sewage Collection and Treatment (Refer to Section 9 of the Mobile Home Regulations)

4.1. An adequate and safe sewerage system shall be provided in all mobile home developments for conveying and disposing of sewage from mobile homes, service buildings and other development facilities. The sewerage system shall be designed, constructed, and maintained in accordance with all applicable regulations and the requirements of the state department of health.

4.2. Wherever possible, the sewerage system of a mobile home development shall be connected to a public sewerage system. If public sewers are not available within a reasonable distance of the mobile home development, adequate treatment facilities shall be installed to dispose of the sewage. Proposed sewage disposal facilities must be approved by the state department of health prior to construction with the exception that approval of septic tank, soil absorption sewage disposal systems of less than 1,500 gallons capacity shall be obtained from the local health department. The effluent from such treatment facilities shall be discharged only as permitted by the state department of health.

4.3. Sewage collection and treatment systems for mobile home parks

shall be designed and constructed in accordance with the publication, "Permit Procedures and Design Requirements for Small Sewage and Water Systems", regulations, specifications and instructions issued by the state department of health.

4.4. Riser Pipes

4.4.1. A sewer service connection shall be provided at each mobile home lot. The sewer riser pipe should be located so that it provides a nearly vertical connection between the riser pipe and the drainage outlet of the mobile home. The ANSI Standard for Mobile Homes, A119.1-1971 specifies that the drain outlet shall be 3 inches in diameter and shall be located in the rear half section of the mobile home. The location of the sewer inlet on the stand should be as close as possible to the drain outlet on the mobile home. In order to achieve this, it is recommended that the riser pipe be located under the mobile home. A good location is at the center line of the stand and 40 feet from edge of the stand. This location will serve most of the mobile homes now being built.

4.4.2. The sewer service connection utilizes a riser pipe that is at least 4 inches in diameter and that terminates at least 4 inches above the ground surface. The tubing or piping connecting the drain outlet of the mobile home and the sewer riser pipe should be non-collapsible, semi-rigid, and 3 inches in diameter. The line connecting the drain outlet and sewer riser shall be sloped at not less than 1/4 inch per foot. A reducer from 4 to 3 inches should connect the bell end tubing or piping. All materials used for sewer connections should be corrosion resistant, non-absorbent and durable, with a smooth surface. No subsurface trap is necessary in the

sewer riser pipe since the plumbing fixtures in mobile homes are adequately trapped and vented.

4.4.3. Other types of sewer connections, such as those that utilize a threaded type connection, are acceptable if they are watertight, airtight and otherwise equivalent to the recommended connection. When the sewer connection is not in use, the bell of the riser pipe shall be capped with an airtight cap or plug. This is necessary to exclude rodents and other objects and to prevent the escape of odors.

#### 4.5. Storm Water Drainage

4.5.1. The installation of a storm water drainage system will improve the drainage of any site that does not have good natural drainage. Separate systems shall be provided for storm water and sewage. The storm sewer system should be sized and designed according to standard engineering practice. Storm sewer should be laid on sufficient grade to provide a minimum velocity of 2.5 feet per second when flowing full.

### Section 5. Management Buildings and Community Service Facilities (Refer to Section 10 of the Mobile Home Regulations)

#### 5.1. Management and Service Buildings

5.1.1. Every mobile home development should be provided with a service building containing emergency sanitary facilities consisting of at least one lavatory and one flush toilet for each 100 mobile home lots. Where feasible, the consolidation of sanitary, laundry, management, and other service facilities in a single building and location is recommended if the single location will adequately serve all mobile home lots. Consolidation is preferable for efficient construction, use, and maintenance of all facilities.

5.1.2. Service buildings and other development structures, when provided, should conform to the local, state and national codes and regulations. All development buildings shall be of permanent construction, with a weather-resistant exterior finish and an interior finish of moisture-resistant material that will stand frequent washing and cleaning.

5.1.3. All rooms containing plumbing fixtures shall have floors that are impervious to water, easily cleaned, and sloped to floor drains connected to the sewerage system. The floors and the plumbing fixtures should be maintained in a sanitary condition at all times by periodic washing and disinfecting. Walls and partitions around toilets, lavatory, and other plumbing fixtures should be constructed of nonabsorbent, water-proof material, or covered with moisture-resistant material.

5.1.4. The rooms of all buildings should be well ventilated and all exterior openings should be covered with screen having 16 meshes per inch. Rooms containing sanitary or laundry facilities should be provided with at least one openable window or skylight facing directly outdoors, or a mechanical device that will adequately ventilate the room. Positive mechanical ventilation is usually preferred because openable windows and skylights are not dependable as a means of ventilating these spaces. There is also the problem of windows remaining closed during inclement weather.

5.1.5. The minimum total window area, measured between stops, should be 10 percent of the floor areas of the room. When design permits, windows should be placed high in the wall and in more than one wall if possible.

5.1.6. Service buildings shall have heating facilities capable of main-

taining a temperature of 70°F. and capable of heating sufficient hot water for all lavatory and laundry fixtures.

5.1.7. Toilet and laundry rooms should be well lighted at all times since adequate lighting will encourage cleanliness. Daylight should be used to supplement lighting requirements whenever possible. Men's and women's toilet rooms shall be distinctly marked and separated by a sound-resistant wall. A screen or wall should prevent direct view of toilet compartments when the exterior doors are open. Each water closet shall be in a separate compartment equipped with a self-closing door.

5.1.8. The owner or operator of a mobile home development should provide additional facilities in the service facilities. Laundry equipment, icemaking machines, and public telephones are extra conveniences that development residents will appreciate.

5.1.9. When considering the installation of laundry facilities within a mobile home development, it should first be determined that such equipment will have sufficient use, since unused facilities can create economic and maintenance problems for the development owner or operator. Factors that should be evaluated include the proximity of coin-operated public laundries or commercial laundries, and the number of development residents who will have automatic washers installed in their mobile homes.

## 5.2. Service Areas

5.2.1. Where areas for the outdoor drying of clothes are necessary, it has been found that approximately 2,500 square feet per 100 mobile home lots is adequate with rotated use. It may be desirable to locate the drying yard near the service or laundry building, if provided, and as far as

possible from roadways or traveled areas. It has also been found practical to provide clothes-drying facilities on the individual mobile home lots, provided that the drying units are standardized and are properly located and installed. Where the clothes are drying facilities are permitted on the individual mobile home lots, it is suggested that they be provided as part of the basic facilities, to assure that the same type of unit, located in the same general area of each mobile home lot, it used throughout the development. Umbrella-type lines in permanent sockets are recommended. The use of individual drying facilities also requires that the owner or operator develop and enforce rules that permit clothes drying only on the facilities provided. All clothes-drying areas, whether centrally located near the service building or on the individual mobile home lot, should be adequately screened from view so that they do not detract from the appearance of the mobile home park and are not objectionable to residents of adjacent property. If desired, car wash and other general purpose facilities can be provided as a service to residents of the mobile home development. Any such facilities should be properly constructed and preferably, screened from view.

### 5.3. Recreation Areas

5.3.1. Mobile home developments that accommodate 25 or more mobile homes should be provided with at least one easily accessible recreation area. When several different age groups are to be provided for, it may be desirable to have two or more separate areas to serve the various interests.

5.3.2. For safety reasons, recreation areas always should be located where they are free of traffic hazards. It may be also desirable to provide some sort of buffer zone around the area, such as trees, bushes, or other

vegetative growth. If shrubbery is planted immediately adjacent to the street, a fence should be installed to prevent children, who are obscured from the motorists' vision, from darting into the roadway.

5.3.3. A recreation area can be located adjacent to recreation or service buildings, if provided, for efficient construction, use, and maintenance of both the area and the structure. The minimum area for each recreational space should be two-thirds of an acre, and the total recreational area should be not less than 8 percent of the gross area of the site. Swimming pools, recreation buildings, and areas for child play can be considered as fulfilling part of the total area requirement.

5.3.4. Swimming pools shall be constructed and operated in accordance with all applicable state department of health requirements and regulations.

Section 6. Electrical Distribution (Refer to Section 11 of the Mobile Home Regulations)

6.1. Preferably, distribution lines should be installed in underground conduits. Underground lines provide a much neater appearance and permit more efficient use of available land than do overhead lines. Underground lines should be placed at least 18 inches below the ground surface and at least 1 foot radial distance from water, sewer, gas, or communication lines.

6.2. If overhead power lines are installed, they should be at least 18 feet above streets or roadways. A minimum horizontal clearance of at least 3 feet is necessary between overhead lines and structure. Electrical systems of mobile home developments should be calculated on the basis of at least 16,000 watts (at 120/240 volts) for each mobile home. Since all mobile homes,

however, do not use the maximum amount of electricity at once, demand factors should be checked with the power company supplying the mobile home park.

6.3. A properly grounded, weatherproof receptacle capable of supplying at least 100 ampere current at 115/230 volts should be provided for each mobile home lot. Those mobile homes, however, that are equipped with air conditioners, automatic washers and dryers, or other power consuming appliances may need 100 ampere current at 120/240 volts. The attachment plug, connectors, and mating receptacles should be of a 3-pole, 4-wire grounding type complying with ANSI C73.1.

6.4. The point of the electrical connection for the mobile home should be within the area of the mobile home stand and approximately 40 feet from the front of the stand.

6.5. Circuit breakers or other overcurrent protective devices and disconnecting switches should be provided in a convenient location for each mobile home to be served. The outlet receptacles should be within 25 feet of the overcurrent protective devices in the mobile home.

6.6. All exposed noncurrent carrying metal parts of mobile homes and equipment should be grounded by means of an approved grounding conductor run with branch circuit conductors or other approved method of grounded metallic wiring. The neutral conductor should not be used as an equipment ground for mobile homes or other equipment.

6.7. Lighting

6.7.1. Adequate lighting should be provided for all streets, walkways, buildings, and other facilities subject to nighttime use. Illumination

should be provided in accordance with local and power company requirements; where none exist, the recommendations in the Standard Lighting Guide of the illuminating engineering society may be applied.

6.7.2. Because of the safety hazards associated with high density developments, such as mobile home developments, it is recommended that an average illumination level of at least 0.6 foot candles and a minimum illumination level of 0.1 foot candle be maintained on all streets. Potentially hazardous locations, such as street intersections and steps or stepped ramps, should be individually illuminated, with a minimum level of 0.3 foot candles.

Section 7. Solid Waste (Refer to Section 12 of the Mobile Home Regulations

7.1. Generally, the solid waste produced in a mobile home development will be about the same as that produced in any other residential area. The composition of solid waste may vary, but it consists mostly of paper products and food waste (garbage).

7.2. Garbage can be effectively disposed of by grinding it in a garbage grinder and then discharging it into a sanitary sewer. If grinding is not used, another method of handling the garbage is that of draining and wrapping it in several thicknesses of newspaper. This practice prevents fly production, keeps the containers clean, reduces odor production, and prolongs the life of containers. When local regulations restrict the grinding or wrapping of garbage, extra care is necessary in storing it. The area around containers should be kept free from waste material, and containers should be washed regularly to control odors and fly breeding.

7.3. The other components of solid waste, often referred to as rub-

bish, can usually be placed in the storage containers without special treatment.

7.4. Bulky rubbish, such as tree and shrub trimmings, should be tied in bundles that are easy to handle and small enough to load easily in the collection truck.

7.5. Containers

7.5.1. All solid waste shall be stored in durable, rust-resistant, nonabsorbent, watertight, and rodent proof containers that are covered with close fitting lids and provided with suitable handles. They shall be maintained in a clean condition and kept in good repair. Sufficient capacity shall be provided to prevent any container from overflowing between collections. Generally, each mobile home will require from 5 to 10 gallons of storage capacity per day for solid waste.

7.5.2. Paper or plastic sacks designed specifically for storage of solid waste may be used at individual mobile home sites if they are at all times properly attached to a holder that keeps them off the ground and covered with a flytight lid. All filled sacks should be stored in rodent proof areas and preferably, deposited immediately into a large rodent proof container; or collection should be frequent enough to prevent the accumulation of filled bags.

7.5.3. Unless local collection regulations or disposal methods require the use of separate containers, garbage and rubbish may be stored in the same container. Combined solid waste collection is generally recommended because there is little to be gained by separating garbage from rubbish.

7.5.4. Where combined solid waste or rubbish is collected, containers

with a capacity of about 30 gallons are recommended to provide adequate capacity and yet be small enough for easy handling by collectors. If garbage is collected separately, it can be stored in a container of about 10 gallon capacity.

7.5.5. The life of containers can be prolonged and the sanitary condition more easily maintained by lining them with a disposable paper or plastic bag as protection against excessive soiling and rusting. Spraying of suitable insecticides and sanitizing chemicals may be necessary in and around the containers to reduce odors and fly production during warm weather.

7.5.6. Preferably, each mobile home lot should have its own solid waste storage facilities; however, the same storage facilities can be used for adjacent lots so long as ample capacity is provided. It is also possible to use bulk containers to serve several mobile homes and thus reduce the storage area required for solid waste. Bulk containers should have lids that are easily opened and that automatically return to a closed position. They should be watertight and rodent proof, and should be installed in a manner that does not present a safety hazard, especially for children.

7.5.7. The location of refuse containers on the mobile home lot can be varied, but it is important that permanent locations be selected and satisfactory racks or stands provided to minimize spillage and container damage and deterioration. Containers should have at least 12 inches of clear space beneath them to facilitate cleaning and to prevent rodent harborage.

7.5.8. It is advisable that a screen or enclosure be placed around the refuse container storage area to prevent direct viewing of the containers and access to them by dogs or other animals. Screens of concrete or masonry

block can be constructed so that they are both decorative and durable. It is important that the enclosure be easy to clean and easily accessible to the collectors.

7.6. Collection

7.6.1. All solid waste that contains garbage shall be collected at least once weekly. Frequent collection service requires less provision for storage capacity. Where collection service is provided by municipal or private agencies, it should be utilized to insure regular removal of the solid waste.

7.6.2. Routes of collection vehicles should be planned so as to create the least amount of congestion and traffic hazard. The strength of the roadway surface also should be considered when planning routes since some collection trucks may be heavy enough to damage low strength roads.

Section 8. Insect and Rodent Control (Refer to Section 13 of the Mobile Home Regulations)

8.1. The control of insects and rodents in mobile home developments is necessary to protect the health and property of the residents. Insects and rodents are capable of transmitting diseases to man and other animals by bites or by indirect contact, and they also may cause property damage, including damage to vegetation by gnawing or chewing.

8.2. Small localized infestations of insects or rodents can often be controlled by the owner or operator of the mobile home development. Wide spread infestations, however, should be handled by a competent pest control operator, especially if large scale chemical treatment procedures are used.

8.3. The best method of controlling insects and rodents in mobile home developments is by using environmental sanitation procedures that

eliminate food sources and places of harborage used by these pests. A proper environment will discourage the infestation and breeding of insects and rodents. The use of good environmental sanitation procedures will, in most instances, provide the most effective control and, over a period of years, it is more economical than repetitive chemical control measures, which should be used only if adequate control cannot otherwise be maintained.

8.4. When pesticides are used, proper precautions are always necessary to assure the safety of humans, domestic pets, and desirable wildlife. Many pesticides are potentially very hazardous and should be used only by trained pest control works. Untrained persons using pesticides should use them only for small scale treatments, and any instructions for use on the labeling of the package should be followed carefully. When large scale applications of pesticides are to be made in a mobile home development, a competent pest control operator should be consulted.

#### 8.5. Mosquito Control

8.5.1. Mobile home developments shall be kept free of cans, jars, buckets, old tires, and other objects that may hold water and provide breeding places for mosquitoes. All depressions in which water may collect shall be drained or filled to eliminate potential breeding areas. Any type of vegetation promoting mosquito harborage shall be treated or removed.

8.5.2. For chemical treatment No. 2 fuel oil or kerosene applied at a rate of about 5 to 30 gallons per acre is an effective larvicide for use in low, wet areas and on pools of standing water.

#### 8.6. Fly Control

8.6.1. Attempts at chemical control of flies are seldom effective when

not accompanied by proper environmental sanitation procedures. Flies shall not be allowed access to organic matter, such as garbage, since they reproduce rapidly in this material. Garbage shall be wrapped in paper and kept in proper containers provided with tight fitting lids. Garbage containers shall be replaced or repaired when so damaged that their lids do not fit tightly enough to prevent the entrance of flies. All containers shall be washed frequently and securely fastened on racks or stands to prevent overturning. The area around containers should not become littered with garbage or saturated with liquid waste from garbage. Droppings from dogs and other animals must be removed or covered with dirt or other suitable material.

#### 8.7. Rodent Control

8.7.1. The most effective way to prevent or eliminate rodent infestation is to destroy places of harborage and remove food sources that attract and sustain rats. Harborage places can be eliminated by the orderly stacking of such materials as lumber, pipe, or sheet metal at least 12 to 18 inches off the ground. Useless scrap material or rubbish should be promptly disposed of. Storage and utility buildings, and all other types of buildings as well shall be rat-proofed.

8.7.2. In food storage areas, such as might be found in recreation building snack bars or other food service facilities, all food supplies shall be stored with at least a 12 to 18 inch clear space beneath them. Periodic inspections should be made of food supplies to determine whether rodents may have gained access to them.

8.7.3. Rodents can be controlled by trapping, the use of rodenti-

cides, or both. Trapping has an advantage in that when the rodent is caught it can be removed from the premises without the odor problem that sometimes results when a poisoned animal dies in its place of harborage. Trapping is not as effective as poisoning, however.

8.8. Cockroach Control - The best method for the control of cockroaches is general cleanliness and tidyness. Food bits and crumbs should not be allowed to accumulate on floors, in cracks or crevices, or in other places accessible to roaches. Rags, books, and other objects should not be stored in dark, damp places or stored in a disorderly manner.

8.9. Flea, Tick and Chigger Control - Grass should be cut frequently, and weeds should be eliminated in order to reduce food sources and places of harborage for insects and the mammal hosts of these pests.

Section 9. Fuel Supply and Storage (Refer to Section 14 of the Mobile Home Regulations)

9.1. All handling or storage of natural gas, liquified petroleum gas (LPG), fuel oil, or other flammable liquids or gases should conform to all applicable regulations; where none exist, the standards of ANSI and the National Fire Protection Association (NFPA) can be applied. For details, see the ordinance that follows these guidelines.

9.2. Central storage and underground distribution of fuel is recommended to decrease the frequency of fuel deliveries, eliminate the unsightliness of individual fuel storage facilities, and provide more free usable space on each lot. All piping in any fuel distribution system should be composed of suitable material, such as steel, wrought iron, threaded copper, or brass; it should be permanently installed and fastened in place. All fuel

service lines to mobile home lots should be provided with a shutoff valve upstream from the service outlet. The service outlet should be capped when not in use.

9.3. If LPG or fuel oil containers are installed on mobile home lots, they should be securely fastened in place to prevent overturning. No LPG or fuel oil container shall be placed inside or beneath any mobile home, storage cabinet, carport, or any other structure unless such arrangement is approved by the appropriate authority. Containers of fuel oil shall be at least 5 feet from any mobile home exit.

9.4. Natural gas risers shall be steel coated pipe. Plastic pipe shall be used for underground service only. Plastic pipe used shall be ASTM 2513, approved for gas operation. In the event the mobile home park operator receives his gas service at a master meter and supplies the park residents from the master meter, the gas supply system within the park must be constructed in accordance with the Public Service Commission "Minimum Safety Standards for Transportation of Natural and Other Gas by Pipelines". When supplying gas from a master meter, the mobile home park operator must file with the local health department a statement from the company supplying gas to his park, certifying that the gas system within the park has been inspected and meets the safety standards mentioned above. This certification must be filed prior to issuance of a permit to operate.

Section 10. Fire Protection (Refer to Section 15 of the Mobile Home Regulations)

10.1. If a water supply of sufficient quantity is available, fire hydrants should be installed within 500 feet of all mobile homes, service

buildings, or other structures. The hydrants or other water supply facilities should be so arranged as to permit the operation of a minimum of two 1½ inch hose streams on any fire that might occur. The water supply system serving the hydrants should be able to provide a delivery of at least 75 gallons per minute at each of two nuzzles, held 4 feet above the ground, at a flowing pressure of at least 30 pounds per square inch at the highest elevation in the area served.

10.2. If hydrants are not installed, then equivalent protection, as determined by the local fire protection authority of nations fire protection association standards, should be provided. Fires should be allowed only in stoves, incinerators, and other equipment specifically designed for such puproses; open fires should never be permitted. Mobile home developments should be kept free of dry brush, weeds, and combustibile refuse.

10.3. At least one portable fire appliance, such as Class A extinguishers (soda-acid, pump tank, anti-freeze), should be installed in service buildings and other buildings to fight fires in ordinary combustibile materials. These extinguishers should be located so that it will not be necessary to travel more than 100 feet from any mobile home to reach the nearest extinguisher.

10.4. In lieu of this extinguisher, the development may wish to provide valved water outlets with a garden hose of a type usable in all weather, permanently attached, or in cabinets immediately adjacent to the hose connection, and so located that any part of any mobile home can be reached with a garden hose stream.

10.5. One or more approved extinguishers of a type suitable for

flammable liquid, Class B, or electrical fires, Class C, in accordance with NFPS standards should be so located that it will not be necessary to travel more than 100 feet to reach the nearest extinguisher.

10.6. Fire and safety hazards have been associated with mobile homes containing heating equipment that is inadequately vented, often because of improper construction or installation. Such equipment presents not only the danger of fire, but also the danger of asphyxiation from accumulation of carbon monoxide gas.

10.7. The owner or operator of the mobile home park should not permit residents to use heating or cooking equipment or systems that appear to be hazardous, such as portable fuel burning equipment in unvented, confined enclosures. To assure adequate safety, all equipment and systems should be constructed in accordance with the ANSI, Standard for Mobile Homes A119.1-1971.

10.8. It is recommended that each mobile home owner be encouraged to provide for his own protection a J.L. approved portable fire extinguisher suitable for handling fires in the home.

#### Section 11. Preparation of Plans

11.1. In the early planning stage and prior to construction, layout plans of proposed mobile home developments should be prepared and submitted for review and approval to zoning and planning authorities and to the state department of health prior to construction. An early review is desirable so that suggested changes can be easily incorporated before plans are solidified. A description of the location of the site with regard to highways, streets, and landmarks should accompany the layout plans.

11.2. The detailed construction plans should show; the area and dimensions of the site; the number, location, and dimensions of all mobile home lots, the location and width of roadways, automobile parking facilities, and walkways; the location of service buildings and any other proposed structures; plans and specifications for the water supply, sewage disposal, and solid waste disposal facilities—including the location of water lines, sewer lines, and riser pipes; plans and specifications for all buildings constructed, or to be constructed, within the mobile home development; and the location and details of lighting, electrical and fuel systems. Size of plan sheets shall be as set forth in Part I, Section 3 of EG-6 Permit Procedures And Design Requirements issued by the state department of health.

11.3. Depending on the extent of the facilities to be provided, additional plans may be required to show the location of fire hydrants; plans and specifications for swimming pools, other special recreational facilities, and special landscaping fuel oil and LP gas storage facilities; and details of service facilities, such as carwash or clothes-drying areas.

11.4. Design information, details and requirements of the state health department for sewer and water systems are contained in the publication, "Permit Procedure and Design Requirements for Small Sewage and Water Systems" issued by the state department of health.

## Section 12. Application

12.1. A construction and installation permit is required prior to construction or installation of a mobile home park or any part thereof (Section 5 of the Mobile Home Regulations). Application forms may be obtained from your local health department.

12.2. In addition to the application and plan information required for the mobile home park itself, applications are required for the construction of sewage collection and treatment systems and water supply and distribution systems. Details of application, design and plan requirements are contained in the publication "Permit Procedure and Design Requirements for Small Sewage And Water Systems" issued by the state department of health.

12.3. Applications and plans for mobile home parks of six (6) or less spaces shall be forwarded to the state department of health through the local health department.