



# CITY OF LOMPOC CALIFORNIA

## STANDARD REQUIREMENTS FOR THE DESIGN AND CONSTRUCTION OF SUBDIVISIONS AND SPECIAL DEVELOPMENTS

### SECTION 8 PARKING LOT FACILITIES

REVISED: JULY 3, 1990

## SECTION 8

### PARKING FACILITIES

#### GENERAL

Thorough consideration of all factors pertaining to parking should be given to the overall plan of any project at its inception in order to integrate the design of buildings and structures within the parking areas and related improvements.

Residential, commercial, industrial, institutional, and other types of projects all have particular requirements relative to parking, and should be planned accordingly.

Detailed parking layouts should be developed simultaneously with building plans so that oversights leading to inefficient control of traffic and similar errors of design may be avoided.

Planning should be done by the Architect or Engineer in charge of designing the entire project and its related facilities, in cooperation with parking, landscaping, and lighting consultants, and with applicable City agencies.

#### DEFINITIONS

"Stall" means that portion of a parking facility in which a vehicle is parked.

"Single Row" means one row of stalls, usually located on the perimeter of a parking facility.

"Double Row" means two continuous rows of stalls, usually forming an island between traffic aisles and located in the interior areas of a parking facility. At angled stalls, a central division line is usually painted to separate the cars, unless a physical barrier is used. Occasionally the rows are separated to provide pedestrian aisles between the rows.

"Pedestrian Aisle" means those portions of a parking facility reserved exclusively for pedestrian use, and the other routes normally used by pedestrians between parking stalls and buildings. Exclusive use areas typically would be designated controlled lanes between or across rows of stalls, raised walkways, and similar protected routes. Other routes are those that coincide with traffic aisles or may be uncontrolled random access across rows of stalls.

"Traffic Aisle" means those portions of a parking facility that are used for vehicle travel to and from stalls, including the routes to street entrances and exits.

"Double-Loaded Traffic Aisle" means a traffic aisle with accessible stalls on both sides.

"Single-Loaded Traffic Aisle" means a traffic aisle with accessible stalls on only one side.

"Driveway", "Entrance," "Approach," and similar words mean those areas, usually outside the property line, used by vehicles for ingress and egress. They are usually located on public property in connection with streets and roads.

"Dead Area" are those portions of a parking facility not usable for stalls or traffic aisles. They may be used for pedestrian aisles or lanes, lighting, landscaping, or other improvements.

### COMPLIANCE WITH LEGAL REQUIREMENTS

Initial planning must include compliance with Section 8858 of the Zoning Ordinance and regulations and codes of all authorities having legal jurisdiction especially with respect to layout in relation to street exits and entrances, protective devices such as walls and barricades at parking area perimeters, landscaping, lighting facilities, and above all, capacity in relation to building occupancy.

Consultation with City authorities early in the planning stage is always advisable, and may introduce factors affecting design considerations and selection.

Consideration of building occupancy is critical in relation to many other elements of the parking design, including traffic flow, aesthetics, and related factors.

### TRAFFIC FLOW

Control of traffic affects the overall layout of parking areas, including direction and width of traffic aisles, dimensions and angle of stalls, the providing of single or double rows of stalls, perimeter parking, and the necessity of providing single or double-lane traffic aisles and street entrances.

Vehicle turning radii must be considered, both within the parking lot itself, from main aisle to side aisles and entrances and exits to streets. The width of driveways affect the path a vehicle will follow when turning into a public street when exiting. Widths and spacing of driveways must be carefully designed to City standards to avoid creating excessive friction with traffic on public streets.

### DESIGN

The parking area design should be given consideration to control of pedestrian traffic, and should provide the most efficient pedestrian access to vehicles and to building entrances and exits.

Structural sections of all parking lots should be designed by a soils engineer and submitted along with a drainage and grading plan to the City Engineer For his approval.

Paving surfaces should be of nonslip type, drainage should be efficient to eliminate puddles after rainfall, and painted markings should be used wherever possible to direct both vehicle and pedestrian traffic.

At night-used parking areas, attention should be given to design and placing of light standards to avoid creating a hazard to vehicles.

Curbs at landscaped areas, raised walkways, and similar locations should be carefully designed with rounded corners and angles. The use of the largest radii feasible will improve traffic flow and help prevent damage to vehicles. A radius less than 3 feet shall be avoided.

Landscaping sprinkler heads and valves should not protrude to the level of car bumpers which may overhang planted areas, and should never be located where they may trip or injure pedestrians.

## AESTHETICS

Landscaping is usually the simplest method of achieving a pleasing visual aspect for a parking facility. All landscaping plans must be approved by the Architectural Review Committee.

In lieu of, or in conjunction with landscaping, the parking layout should be planned to make use of parked vehicles to conceal service, trash pickups storage, and other unattractive areas, particularly at multi-use lots where some cars remain parked throughout the day.

Perimeter walls must conform to code requirements, and may be designed to harmonize or be integral with building structures.

Signs or other displays in the parking area of a commercial project should be designed by the architect in charge of building design in order to harmonize with signs or displays on or around the building, and approved by the City.

## GENERAL RULES RELATING TO PARKING FACILITIES:

1. General location of driveway entrances should be approved by City authorities before the major effort of maximum capacity planning is started.
2. Rectangularly shaped parking areas are the most efficient.
3. Wherever possible, the long sides of parking areas should be parallel.
4. Curved, triangular, and other irregularly shaped parking areas should be avoided.

5. Traffic aisles should be aligned parallel to the long dimension of the Parking areas wherever feasible.
6. Irregularly shaped areas should be designed with the traffic aisles parallel to the longest side.
7. Traffic aisles should serve two rows of stalls, that is, should be double-loaded.
8. The perimeter of the parking area may be lined with parking stalls where appropriate.
9. Parking areas must have a drainage and grading plan with a structural section designed by a Civil Engineer and approved by the City Engineer prior to the issuance of a grading permit.
10. Parking areas serving combined parking use functions, such as combined customer and employee parking, should be designed to provide distinctly separate areas and traffic control for each use function.
11. Traffic flow and control should be analyzed carefully for optimum efficiency.
12. Landscaping and lighting should be designed AFTER the optimum maximum capacity design has been achieved. If the maximum capacity design is altered to suit other criteria (such as an owner's request for greater stall width, changes in direction of traffic aisles, etc.), lighting fixtures should be located so the parking area may be converted to the maximum capacity design without requiring relocation of the lighting standards. Where feasible, landscaping should be planned in the same manner, especially where irrigation and sprinkler systems with underground water piping are included.
13. More than one design should be prepared and evaluated. Only good fortune would produce the optimum design on the first attempt.

#### CONSTRUCTION TECHNIQUES

Portland Cement - The subgrade shall be uniform in composition and compaction of 95% R.C. It shall be in a moist condition at the time concrete is deposited thereon. The concrete shall be placed, consolidated, struck off, and finished to the grades shown on the plans. The pavement surface shall be graded to ensure that water will run off. All catch basins and manhole castings shall be separated from the pavement with expansion joint material unless telescoping castings are used. A jointing plan shall be prepared by the contractor and approved by the architect or engineer before paving begins. All except pre-molded and sawed joints shall be edged with a tool having a maximum radius of 1/4" joint openings wider than 1/4" shall be cleaned and sealed before opening to traffic. A uniformly gritty final surface texture shall be provided. Curing shall be that obtained with a uniform coverage of white membrane curing compound or by 7-day coverage with white polyethylene or waterproof paper. The completed pavement shall be closed to passenger car traffic for 3 days and to truck traffic for 7 days.

## ASPHALT CONCRETE

Prior to paving, excavation and rough grading will establish the general site. This should be handled by a paving contractor.

One of the most important items to consider in the construction of a parking area is proper drainage. This includes construction of a storm water system where necessary. The storm water system should be properly designed by the architect-engineer and installed prior to fine grading of the subgrade. Final grading of the subgrade will bring the existing area to the grade level established by the architect-engineer. Final grading must take into consideration the proper flow of storm water to the catch basins, as well as the general contour of the site. After grading the subgrade, it should be thoroughly compacted to 95% R.C. Soft and mushy areas should be removed and replaced with more suitable materials. Ensuring that a good subgrade is established will do much to eliminate any potential trouble spots after the pavement is placed. All parking lot construction to be quality as outlined in Section 6 of these City Standards.

## JOINTING CRITERIA (PCC)

1. Joints should be laid out to aid construction and to control cracking. A square panel pattern is preferable. A maximum dimensional ratio of 1 1/2 to 1 is permissible.
2. The Contractor will decide type of joint (Detail A, B, C, or D) and direction of paving.
3. Construction joint location should be determined by the Contractor's equipment and procedures.
4. Longitudinal and transverse joint spacings should be at regular intervals of 10-15'. Individual spacings, however, may vary slightly to meet catch basin or manhole castings.
5. All longitudinal and transverse contraction joints should have a depth approximately equal to 1/4 of the pavement thickness.
6. Expansion (isolation) joints must be full depth, and should only be used to isolate fixed objects abutting or within the paved area (Detail E, F, or G).
7. During construction, the contractor may make minor adjustments in location of drainage or other structures, which will improve joint locations and pavement performance.
8. Form offsets used by contractors at radius points to provide continuity in paving operations should be at least 1'.
9. Pavement joints must be continuous through the curbs.
10. JOINTS SHOULD NOT BE ALONG FLOW LINES.

HANDICAPPED ACCESSIBILITY

Note: For special conditions, refer to State Building Code (Part 2, Title 24 C.A.C.)

Site Development and Grading:

Site development and grading shall be designed to provide access to primary entrances and access to normal paths of travel where necessary to provide access shall, incorporate pedestrian ramps, curb ramps, etc.

Parking :

(a) The following table establishes the number of handicapped parking spaces required:

Total Number of Parking Spaces.....	NUMBER OF HANDICAPPED PARKING SPACES REQUIRED
1-40 .....	1
41-30 .....	2
81--12.0 .....	3
121-160 .....	4
161-300 .....	5
301-400 .....	6
401-500 .....	7
over 500 .....	1 for each 200 additional spaces provided

When less than 5 parking spaces are provided, at buildings and facilities subject to these regulations, one shall be 14 feet wide and lined to provide a 9 foot parking area and a 5 foot loading and unloading area. However, there is no requirement that the space be reserved exclusively or identified for handicapped use only.

This subsection shall not apply to existing facilities where compliance with local ordinances pre-precludes satisfying the above requirements or of providing equivalent facilitation unless a change of occupancy occurs.

(b) Physically handicapped parking spaces shall be located as near as practical to a primary entrance. If only one space is provided, it shall be 14 feet wide and lined to provide a 9 foot parking area and a 5 foot unloading and loading area. When more than one space is provided in lieu of providing a 14 foot wide space for each parking space, two spaces can be provided within a 23 foot wide area lined to provide a 9 foot parking area on each side of a 5 foot loading and unloading area in the center. The minimum length of each parking space shall be 18 feet. See figure 71-1A.

In each parking area, a bumper or curb shall be provided and located to prevent encroachment of cars over the required width of walkways. Also, the space shall be so located that a handicapped person is not compelled to wheel or walk behind parked cars other than their own. Pedestrian ways which are accessible to the physically handicapped shall be provided from each such parking space to related facilities, including curb cuts or ramps as needed. Ramps shall not encroach into any parking space.

EXCEPTION: Ramps located at the front of physically handicapped parking spaces may encroach into the length of such spaces when such encroachment does not limit a handicapped person's capability to leave or enter their vehicle, thus providing equivalent facilitation.

Note: See Figures 71-1A and 71-16.

- (c) Surface slopes of parking spaces for the physically handicapped shall be the minimum possible and shall not exceed 1/4 inch per foot (2.083% gradient) in any direction.
- (d) Each parking space reserved for the handicapped shall be identified by a permanently affixed reflectorized sign constructed of porcelain on steel, beaded text, or equal, displaying the International Symbol of Accessibility. The sign shall not be smaller than 70 square inches in area and shall be centered at the interior end of the parking space at a minimum height of 80 inches from the bottom of the sign to the parking space finished grade, or centered on the wall at the interior end of the parking space at a minimum height of 36 inches from the parking space finished grade, ground, or sidewalk.

A sign shall also be posted, in a conspicuous place, at each entrance to the offstreet parking facility, not less than 17 inches by 22 inches in size with lettering not less than one inch in height, which clearly and conspicuously states the following

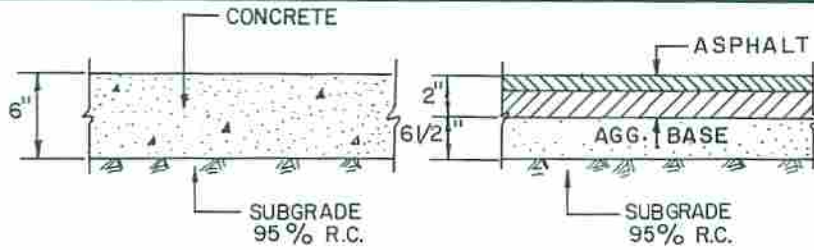
"Unauthorized vehicles not displaying distinguishing placards or license plates issued for physically handicapped persons may be towed away at owner's expense. towed vehicles may be reclaimed at \_\_\_\_\_ or by telephoning \_\_\_\_\_"

In addition to the above requirements, the surface of each parking place shall have a surface identification duplicating the symbol of accessibility in blue paint, at least 3 feet square.

- (e) Entrances to and vertical clearances within parking structures shall be on minimum vertical clearance of 8 feet, 2 inches, where required for accessibility to handicapped parking spaces.



# MINIMUM PAVEMENT THICKNESS

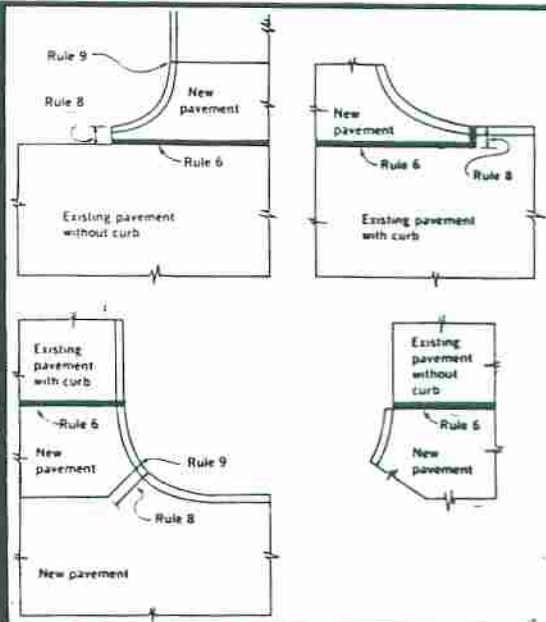


**RIGID PAVEMENT THICKNESS, INCHES**

**FLEXIBLE PAVEMENT THICKNESS, INCHES**

MINIMUM FOR PASSENGER CARS AND PANEL OR PICKUP TRUCK PARKING.

FOR COMMERCIAL OR INDUSTRIAL NEEDS PAVEMENT THICKNESS MUST BE DESIGNED BY A REGISTERED CIVIL ENGINEER BASED ON "R" VALUES FOR FLEXIBLE PAVEMENT & PCC ASSOC. REC. FOR RIGID PAVEMENTS.

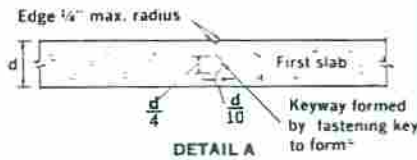


## JOINT CROSS-SECTIONS

### Construction Joint—Longitudinal or Transverse

Created longitudinally by the edges of paving lanes or transversely at the end of a day's work.

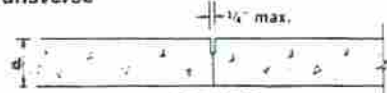
\*Available keys may vary. Keyway may also be formed with half-round material of approximately the same dimensions.



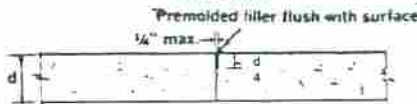
### Contraction Joint—Longitudinal or Transverse

Longitudinal contraction joint: sawed, hand-formed, or premolded filler placed in the center of paving lanes wider than 15'.

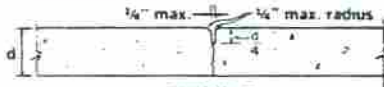
Transverse contraction joint: sawed, hand-formed, or premolded filler placed transversely at 10-15' intervals.



DETAIL B  
sawed joint

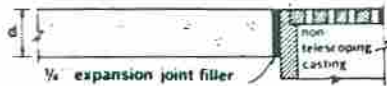


DETAIL D  
premolded filler joint

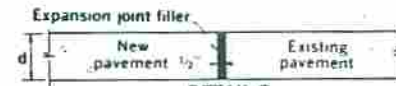


DETAIL C  
hand-formed joint

### Expansion Joints



DETAIL E  
Use only around non-telescoping castings in the paved area.

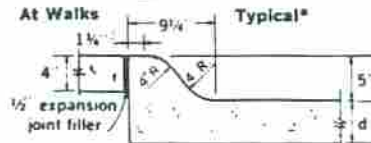


DETAIL G  
Use only at juncture of new and existing pavement.



DETAIL F  
Use only at buildings or objects abutting the paved area.

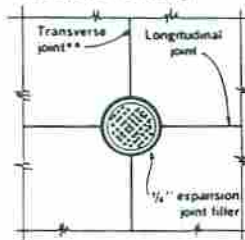
### INTEGRAL CURB



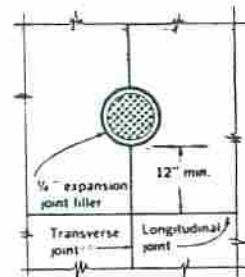
DETAIL H  
\*Available curb templates may vary.

## EXPANSION JOINT PLAN FOR NON-TELESCOPING CASTINGS\*

### Manhole Casting

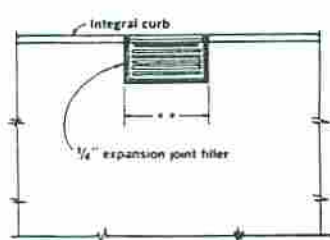


DETAIL J  
At junction of longitudinal and transverse joint.



DETAIL K  
Away from longitudinal joint.

### Catch Basin Casting



DETAIL L

\*Expansion joints are not required with telescoping castings.

\*\*Adjust transverse joint spacing so joint will fall on centerline of round castings and at or between corners of rectangular castings.

APPROVED CITY ENGINEER

DATE 12-13-81  
R.C.E. 24658

CITY OF LOMPOC  
ENGINEERING DIV.

PARKING LOT  
CONSTRUCTION TECHNIQUES

STANDARD DRAWING NO. 800

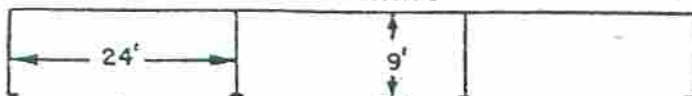
RESOLUTION NO. 3366 (84)

SHT. 1 OF 1

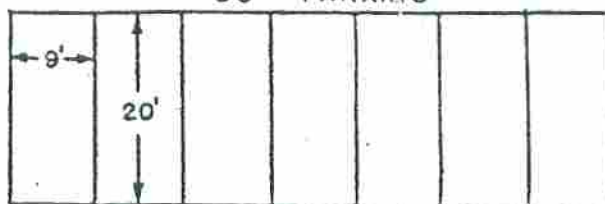
MARK	REVISIONS	APPR.	DATE

All parking areas shall conform to the following designs and specifications.

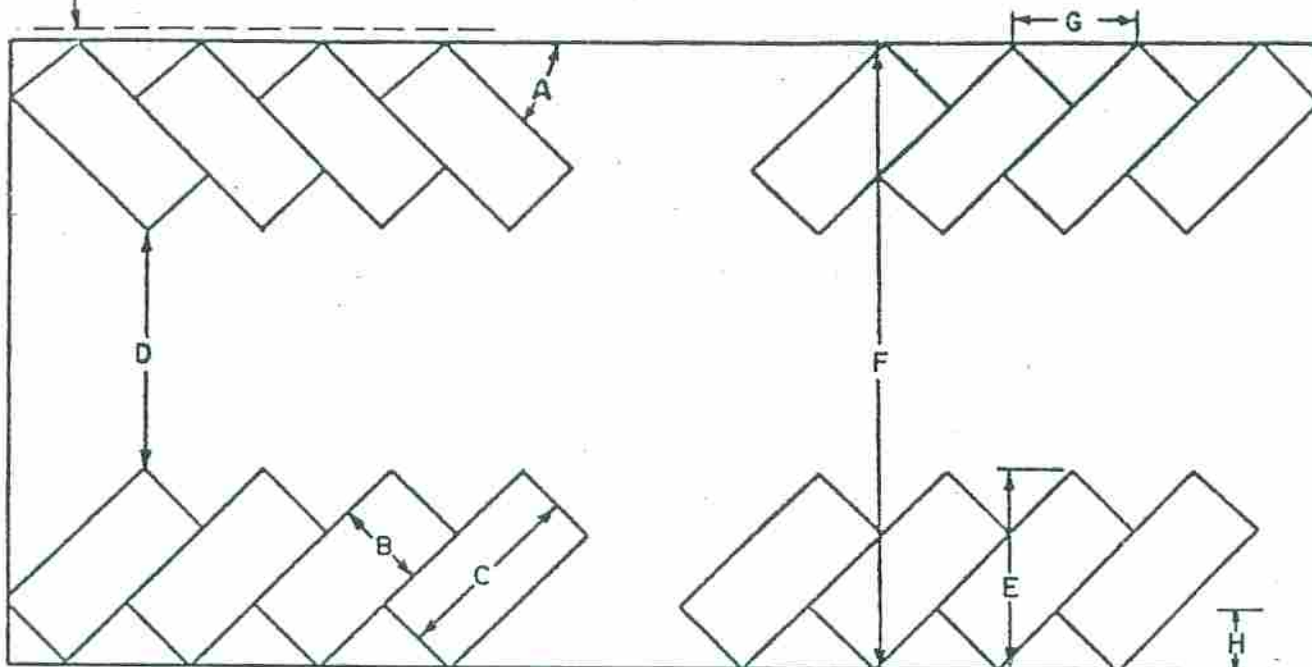
0° PARKING



90° PARKING



6" MIN. TO FENCE OR WALL



A B C D E F G H

0°	9'	24'	12'	24'	--	24'	--
30°	9'	20'	11'	18'	47'	18'	1.5'
45°	9'	20'	13'	20.5	54'	12.9	2.1'
60°	9'	20'	18'	22°	62'	10.5	2.6'
90°	9'	20'	25'	20'	65'	9'	3'

A = PARKING ANGLE

B = STALL WIDTH

C = STALL LENGTH

D = AISLE WIDTH

E = STALL TO CURB

F = CURB TO CURB

G = CURB LENGTH

H = LOCATION OF CURB USED

AS WHEEL STOP

NOTE: 20% OF PARKING MAY BE DESIGNATED AS SMALL OR COMPACT CAR PARKING.

SIZE SHALL BE A MINIMUM OF 7' X 17'

APPROVED  DATE 7-3-84  
CITY ENGINEER R.C.E. 24658

CITY OF LOMPOC  
ENGINEERING DIV.

PARKING LOT REQUIREMENTS

STANDARD DRAWING NO. 801

RESOLUTION NO. 3366(84)

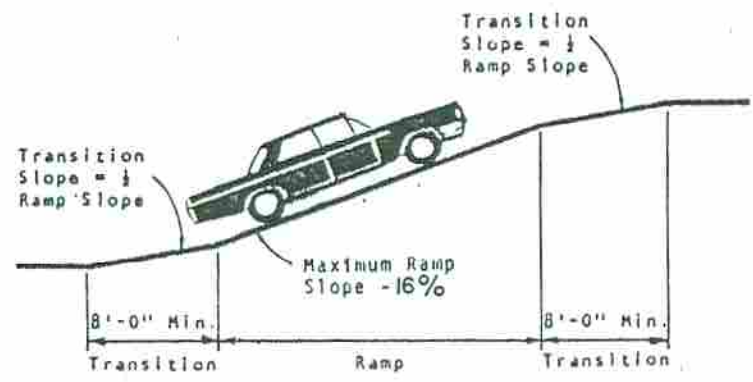
SHT 1 OF 1

MARK REVISIONS APPR. DATE

MARK	
REVISIONS	
APPR.	
DATE	
APPROVED	
CITY ENGINEER	
DATE	7-3-84
R.C.E.	24658

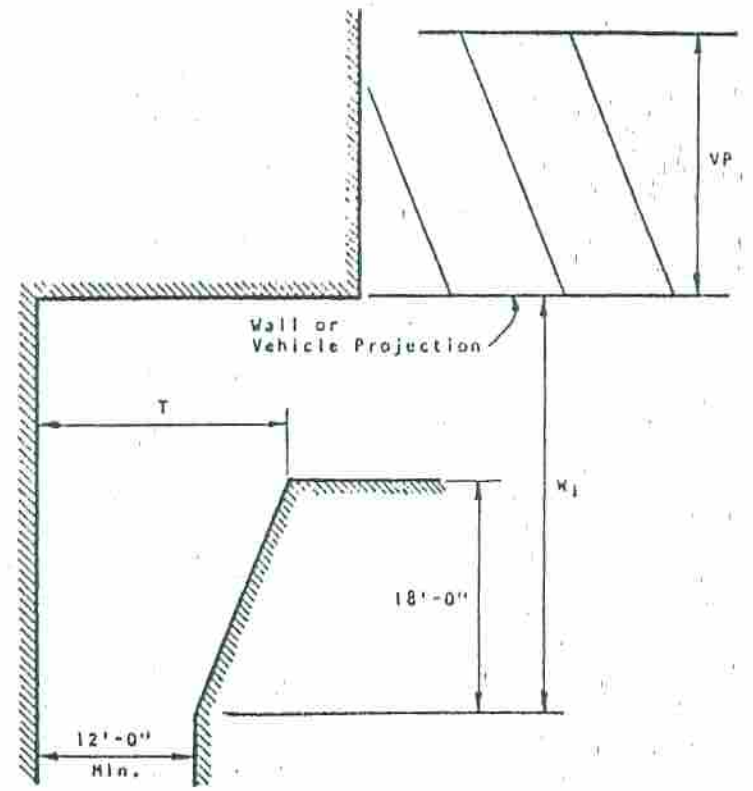
Ramp Slopes

The maximum ramp slope should be 20%. For slopes over 10%, a transition at least eight feet long should be provided at each end of the ramp at one half the slope of the ramp itself.



Note: Transitions required only if ramp slope exceeds 8%.

Minimum Driveway Clearances

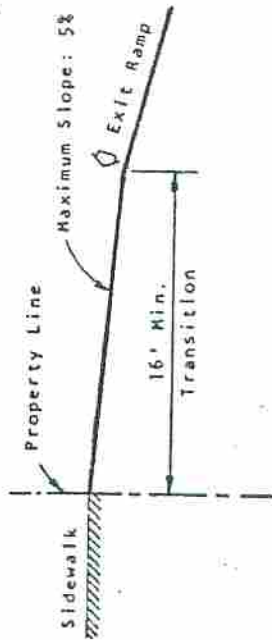


W	T
30'-0" (Min.)	30'-0"
32'-0"	20'-0"
34'-0"	17'-0"
36'-0"	15'-6"
38'-0"	14'-0"
40'-0"	13'-0"
42'-0"	12'-6"
44'-0"	12'-0"
46'-0"	12'-0" (Min.)

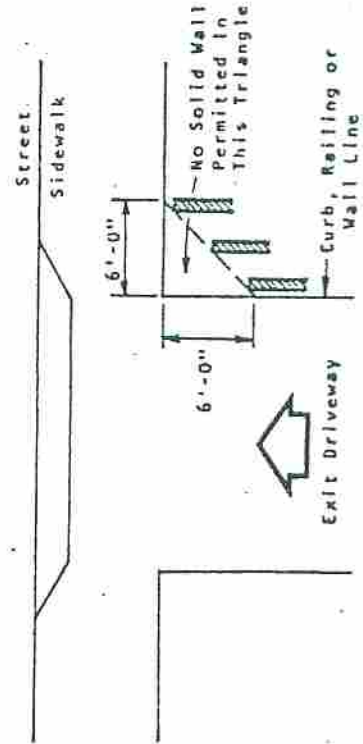
CITY OF LOMPOC  
ENGINEERING DIV.  
PARKING STANDARDS  
STANDARD DRAWING NO. 802  
RESOLUTION NO. 3366 (B4)  
SHT. 1 OF 1

Driveway Exits

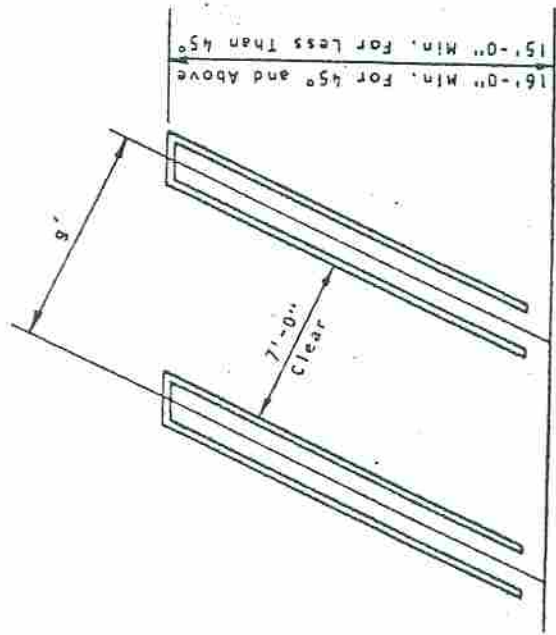
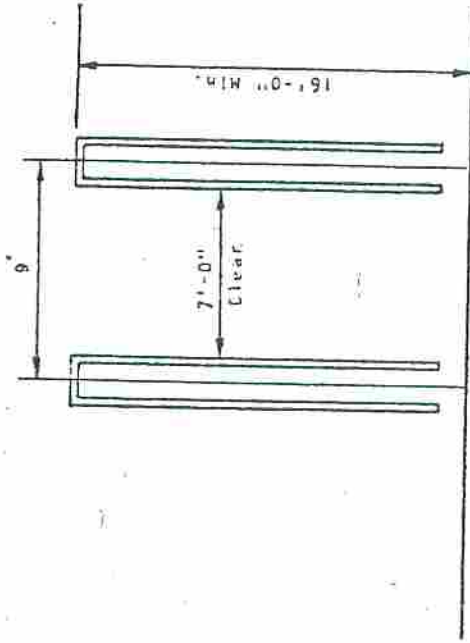
A ramped driveway exit rising up to a public sidewalk must have a transition section that is almost level (maximum slope: 5%) before intersecting the sidewalk to prevent the hood of the car from obscuring the driver's view of pedestrians on the walk. This transition should be sixteen feet long. (See Figure 38A)



Property line walls should also be regulated so as not to interfere with the driver's view of pedestrians on a public sidewalk. Whenever an exit driveway is parallel and adjacent to a property line wall which extends all the way to a sidewalk, the edge of the driveway should be physically established, by curb or railing, at least six feet from the wall. For each foot that the wall is held back from the sidewalk, the required distance between driveway and wall may be reduced by one foot. (See Figure 38B)



Striping Details



APPROVED

*[Signature]*  
CITY ENGINEER

DATE 7-3-84  
R.C.E. 24658

CITY OF LOMPOC  
ENGINEERING DIV.

PARKING STANDARDS

STANDARD DRAWING NO. 803

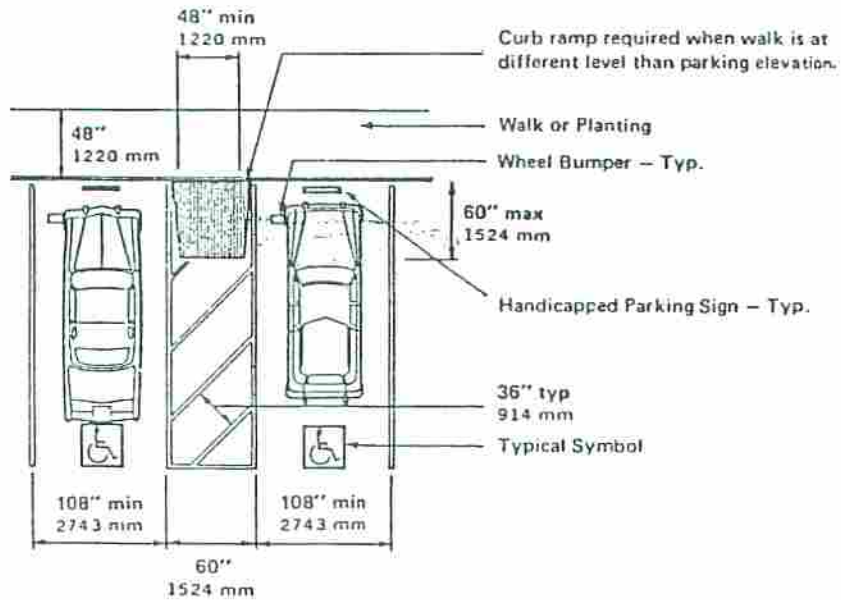
RESOLUTION NO. 3366 (84)

SHT. 1 OF 1

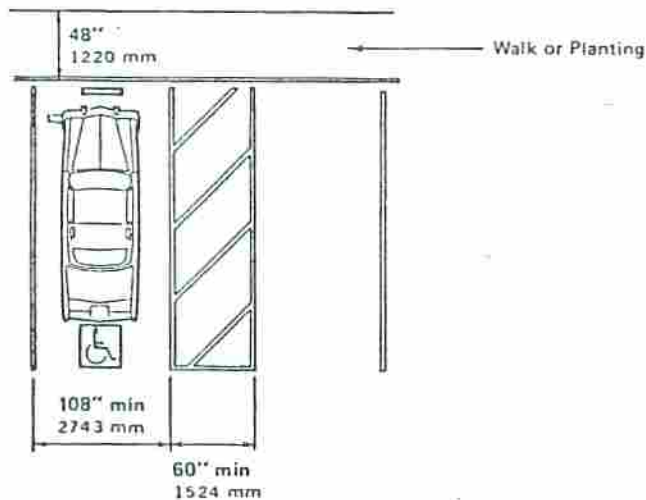
MARK

REVISIONS

APPR. DATE



Handicapped Spaces, Double Type



Handicapped Space, Single Type

Figure 71-1A

APPROVED  DATE 7-3-84  
 CITY ENGINEER R.C.E. 24658

**CITY OF LOMPOC**  
 ENGINEERING DIV.

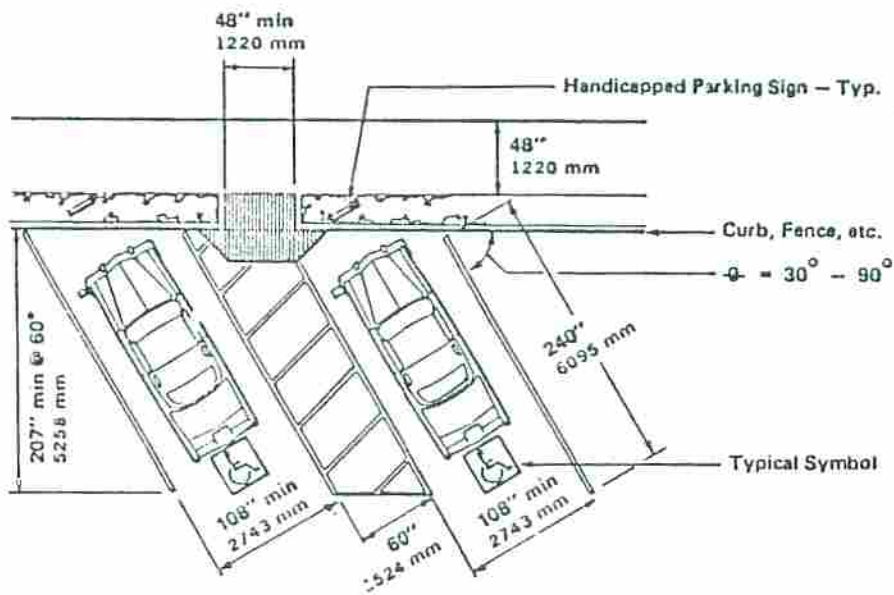
**HANDICAPPED PARKING**

STANDARD DRAWING NO. 804

RESOLUTION NO. 3366 (84)


SHT. 1 OF 2

MARK	REVISIONS	APPR.	DATE



Handicapped Spaces, Double Diagonal Type

Figure 71-1B

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MARK	REVISIONS	APPR. DATE

**CITY OF LOMPOC**  
ENGINEERING DIV.

**HANDICAPPED PARKING**

STANDARD DRAWING NO. 804

RESOLUTION NO. 3366 (84) SHT. 2 OF 2