

Commercial

AUTOMOBILE DEALER CENTERS

TABLE 2 Minimum Space Recommendations

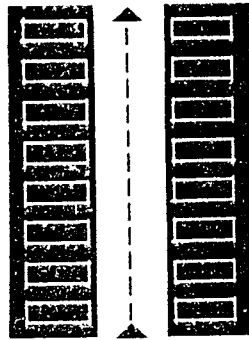
| Space Guide Total Building & Lot | | | | Building Area | | | | | | | Lot Area—Parking and Storage | | | | | | | |
|-------------------------------------|----------------|-----------|------------------------|----------------------------|---------------------------|---------------|------------|-------------------------|------------------------|-----------------|------------------------------|-------------------------|--------|------------------|---------|-----------------|--------|---------------------------------|
| Planning Potential | Total Building | Total Lot | Total Building and Lot | Suggested Reception Spills | Productive Service Stalls | Service Area* | Parts Area | Suggested Display Units | Showroom & Office Area | Service Parking | | Demo & Employee Parking | | Used Car Display | | New Car Storage | | 5% Or Actual Lot Requirements** |
| | | | | | | | | | | Units | Area | Units | Area | Units | Area | Units | Area | |
| 0- 25 | 3,750 | 5,850 | 9,000 | 1 | 4 | 2,000 | 1,000 | 1 | 750 | 8 | 2,500 | 8 | 1,280 | 3 | 960 | 3 | 750 | 300 |
| 26- 50 | 5,700 | 10,640 | 16,340 | 1 | 7 | 3,500 | 1,200 | 1 | 1,000 | 14 | 4,480 | 7 | 2,240 | 6 | 1,920 | 6 | 1,560 | 500 |
| 51- 75 | 6,600 | 12,770 | 19,370 | 1 | 8 | 4,000 | 1,400 | 1 | 1,200 | 14 | 4,480 | 8 | 2,560 | 9 | 2,880 | 9 | 2,250 | 600 |
| 76- 100 | 7,600 | 16,850 | 24,450 | 2 | 9 | 4,500 | 1,600 | 1 | 1,500 | 18 | 5,760 | 9 | 2,880 | 13 | 4,160 | 13 | 3,250 | 800 |
| 101- 125 | 8,200 | 18,980 | 27,180 | 2 | 10 | 5,000 | 1,700 | 2 | 1,500 | 18 | 5,760 | 10 | 3,200 | 16 | 5,120 | 16 | 4,000 | 900 |
| 126- 150 | 9,300 | 22,490 | 31,790 | 2 | 11 | 5,500 | 1,800 | 2 | 2,000 | 22 | 7,040 | 11 | 3,520 | 19 | 6,080 | 19 | 4,750 | 1,100 |
| 151- 175 | 9,900 | 25,260 | 35,160 | 2 | 12 | 6,000 | 1,900 | 2 | 2,000 | 24 | 7,680 | 12 | 3,840 | 22 | 7,040 | 22 | 5,500 | 1,200 |
| 176- 200 | 11,000 | 28,030 | 39,030 | 2 | 13 | 6,500 | 2,000 | 2 | 2,500 | 26 | 8,320 | 13 | 4,160 | 25 | 8,000 | 25 | 6,250 | 1,300 |
| 201- 225 | 11,700 | 30,900 | 42,600 | 2 | 14 | 7,000 | 2,200 | 3 | 2,500 | 28 | 8,960 | 14 | 4,480 | 28 | 8,960 | 28 | 7,000 | 1,500 |
| 226- 250 | 13,400 | 34,730 | 48,130 | 3 | 16 | 8,000 | 2,400 | 3 | 3,000 | 32 | 10,240 | 16 | 5,120 | 31 | 9,920 | 31 | 7,750 | 1,700 |
| 251- 275 | 14,100 | 36,860 | 50,960 | 3 | 17 | 8,500 | 2,600 | 3 | 3,000 | 32 | 10,240 | 17 | 5,440 | 34 | 10,880 | 34 | 8,500 | 1,800 |
| 276- 300 | 14,800 | 40,840 | 55,640 | 3 | 18 | 9,000 | 2,800 | 3 | 3,000 | 36 | 11,520 | 18 | 5,760 | 38 | 12,160 | 38 | 9,500 | 1,900 |
| 301- 350 | 17,300 | 47,540 | 64,840 | 4 | 21 | 10,500 | 3,300 | 3 | 3,500 | 42 | 13,440 | 21 | 6,720 | 44 | 14,080 | 44 | 11,000 | 2,300 |
| 351- 400 | 19,300 | 53,080 | 72,380 | 4 | 23 | 11,500 | 3,800 | 3 | 4,000 | 46 | 14,720 | 23 | 7,360 | 50 | 16,000 | 50 | 12,500 | 2,500 |
| 401- 450 | 20,900 | 58,720 | 79,620 | 4 | 25 | 12,500 | 4,400 | 4 | 4,000 | 50 | 16,000 | 25 | 8,000 | 56 | 17,920 | 56 | 14,000 | 2,800 |
| 451- 500 | 23,500 | 65,890 | 89,390 | 5 | 28 | 14,000 | 5,000 | 4 | 4,500 | 56 | 17,920 | 28 | 8,960 | 63 | 20,160 | 63 | 15,750 | 3,100 |
| 501- 550 | 25,400 | 72,590 | 97,990 | 5 | 31 | 15,500 | 5,400 | 4 | 4,500 | 62 | 19,840 | 31 | 9,920 | 69 | 22,080 | 69 | 17,250 | 3,500 |
| 551- 600 | 27,800 | 79,190 | 106,990 | 6 | 34 | 17,000 | 5,800 | 4 | 5,000 | 68 | 21,760 | 34 | 10,880 | 75 | 24,000 | 75 | 18,750 | 3,800 |
| 601- 650 | 29,700 | 85,790 | 115,490 | 6 | 37 | 18,500 | 6,200 | 4 | 5,000 | 74 | 23,680 | 37 | 11,840 | 81 | 25,920 | 81 | 20,250 | 4,100 |
| 651- 700 | 31,100 | 92,000 | 123,100 | 7 | 39 | 19,500 | 6,600 | 4 | 5,000 | 78 | 24,960 | 39 | 12,480 | 88 | 28,160 | 88 | 22,000 | 4,400 |
| 701- 750 | 33,500 | 98,600 | 132,100 | 7 | 42 | 21,000 | 7,000 | 4 | 5,500 | 84 | 26,880 | 42 | 13,440 | 94 | 30,080 | 94 | 23,500 | 4,700 |
| 751- 800 | 35,400 | 105,200 | 140,600 | 8 | 45 | 22,500 | 7,400 | 5 | 5,500 | 90 | 28,800 | 45 | 14,400 | 100 | 32,000 | 100 | 25,000 | 5,000 |
| 800- 850 | 37,800 | 111,800 | 149,600 | 8 | 48 | 24,000 | 7,800 | 5 | 6,000 | 96 | 30,720 | 48 | 15,360 | 106 | 33,920 | 106 | 26,500 | 5,300 |
| 851- 900 | 39,700 | 119,070 | 158,770 | 9 | 51 | 25,500 | 8,200 | 5 | 6,000 | 102 | 32,640 | 51 | 16,320 | 113 | 36,160 | 113 | 28,250 | 5,700 |
| 901- 950 | 41,100 | 124,710 | 165,810 | 9 | 53 | 26,500 | 8,600 | 5 | 6,000 | 106 | 33,920 | 53 | 16,960 | 119 | 38,080 | 119 | 29,750 | 6,000 |
| 951-1000 | 43,500 | 131,310 | 174,810 | 9 | 56 | 28,000 | 9,000 | 5 | 6,500 | 112 | 35,840 | 56 | 17,920 | 125 | 40,000 | 125 | 31,250 | 6,300 |
| 1001-1100 | 44,800 | 141,040 | 185,840 | 10 | 58 | 29,000 | 9,300 | 6 | 6,500 | 116 | 37,120 | 58 | 18,560 | 138 | 44,160 | 138 | 34,500 | 6,700 |
| 1101-1200 | 47,100 | 151,060 | 198,160 | 10 | 61 | 30,500 | 9,600 | 6 | 7,000 | 122 | 39,040 | 61 | 19,520 | 150 | 48,000 | 150 | 37,500 | 7,000 |
| 1201-1300 | 48,400 | 161,090 | 209,490 | 11 | 63 | 31,500 | 9,900 | 6 | 7,000 | 126 | 40,320 | 63 | 20,160 | 163 | 52,160 | 163 | 40,750 | 7,300 |
| 1301-1400 | 50,200 | 170,150 | 220,350 | 11 | 65 | 32,500 | 10,200 | 6 | 7,500 | 130 | 41,600 | 65 | 20,800 | 175 | 56,000 | 175 | 43,750 | 8,000 |
| 1401-1500 | 52,000 | 180,080 | 232,080 | 11 | 67 | 33,500 | 10,500 | 6 | 8,000 | 134 | 42,880 | 67 | 21,440 | 188 | 60,160 | 188 | 47,000 | 8,600 |
| 1501-1600 | 53,800 | 190,200 | 244,000 | 12 | 70 | 35,000 | 10,800 | 7 | 8,000 | 140 | 44,800 | 70 | 22,400 | 200 | 64,000 | 200 | 50,000 | 9,000 |
| 1601-1700 | 55,600 | 200,030 | 255,630 | 12 | 72 | 36,000 | 11,100 | 7 | 8,500 | 144 | 46,080 | 72 | 23,040 | 213 | 68,160 | 213 | 53,250 | 9,500 |
| 1701-1800 | 56,900 | 209,290 | 266,190 | 12 | 74 | 37,000 | 11,400 | 7 | 8,500 | 148 | 47,360 | 74 | 23,680 | 225 | 72,000 | 225 | 56,250 | 10,000 |
| 1801-1900 | 58,700 | 219,120 | 277,820 | 13 | 76 | 38,000 | 11,700 | 7 | 9,000 | 152 | 48,640 | 76 | 24,320 | 238 | 76,160 | 238 | 59,500 | 10,500 |
| 1901-2000 | 61,000 | 229,340 | 290,340 | 13 | 79 | 39,500 | 12,000 | 7 | 9,500 | 158 | 50,560 | 79 | 25,280 | 250 | 80,000 | 250 | 62,500 | 11,000 |
| 2001-2100 | 62,500 | 239,170 | 301,670 | 14 | 81 | 40,500 | 12,500 | 8 | 9,500 | 162 | 51,840 | 81 | 25,920 | 263 | 84,160 | 263 | 65,750 | 11,500 |
| 2101-2200 | 64,500 | 248,430 | 312,930 | 14 | 83 | 41,500 | 13,000 | 8 | 10,000 | 166 | 53,120 | 83 | 26,560 | 275 | 88,000 | 275 | 68,750 | 12,000 |
| 2201-2300 | 65,700 | 258,060 | 323,760 | 14 | 85 | 42,500 | 13,500 | 8 | 10,000 | 170 | 54,400 | 85 | 27,200 | 288 | 92,160 | 288 | 72,000 | 12,500 |
| 2301-2400 | 68,000 | 268,280 | 336,280 | 15 | 88 | 44,000 | 14,000 | 8 | 10,000 | 176 | 56,320 | 88 | 28,160 | 300 | 96,000 | 300 | 75,000 | 12,600 |
| 2401-2500 | 71,000 | 277,810 | 348,810 | 15 | 90 | 45,000 | 15,500 | 8 | 10,500 | 180 | 57,600 | 90 | 28,800 | 313 | 100,100 | 313 | 78,250 | 13,000 |
| 2501-2600 | 72,500 | 287,270 | 359,770 | 15 | 92 | 46,000 | 16,000 | 9 | 10,500 | 184 | 58,880 | 92 | 29,440 | 325 | 104,000 | 325 | 81,250 | 13,700 |
| 2601-2700 | 74,000 | 296,900 | 370,900 | 16 | 94 | 47,000 | 16,500 | 9 | 10,500 | 188 | 60,160 | 94 | 30,080 | 338 | 108,160 | 338 | 84,500 | 14,000 |
| 2701-2800 | 76,500 | 307,320 | 383,820 | 16 | 97 | 48,500 | 17,000 | 9 | 11,000 | 194 | 62,080 | 97 | 31,040 | 350 | 112,000 | 350 | 87,500 | 14,700 |
| 2801-2900 | 78,000 | 316,950 | 394,950 | 17 | 99 | 49,500 | 17,500 | 9 | 11,000 | 198 | 63,360 | 99 | 31,680 | 363 | 116,160 | 363 | 90,750 | 15,000 |
| 2901-3000 | 79,500 | 326,210 | 405,710 | 17 | 101 | 50,500 | 18,000 | 9 | 11,000 | 202 | 64,640 | 101 | 32,320 | 375 | 120,000 | 375 | 93,750 | 15,500 |
| 3001 + for each 100 P.P. | | | | *** | 2 25 | *** | 500 | *** | *** | 4 5 | *** | 2 25 | *** | 12 5 | *** | 12 5 | *** | *** |

* Does not include reception stall area
 ** For landscaping, building setback and lot entrance driveways
 *** As required.

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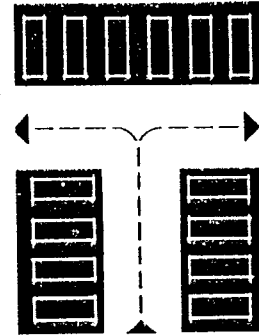
AUTOMOBILE DEALER CENTERS

I PATTERN



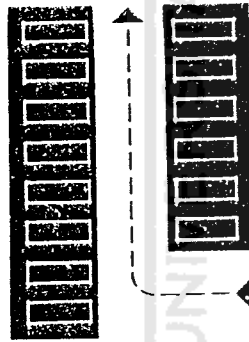
As shown in the illustrations, a simple "I" pattern is the most efficient. This will work in most dealerships if the site permits such an arrangement. However, it cannot be considered a "cure-all." If the number of stalls needed results in an excessive overall length, it makes supervision difficult and places many stalls too remote from the parts department.

T PATTERN



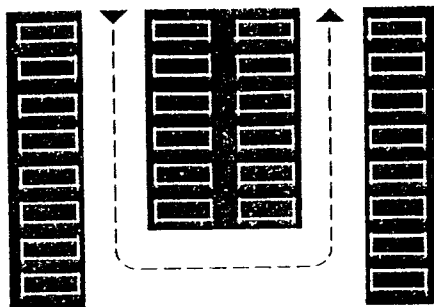
The "T" pattern permits the same number of stalls as the "I" pattern. However, it is not suggested over the "I" pattern since it makes car movement difficult into the two end stalls near each exit. This stall and aisle pattern is useful in cases where an exit in the rear wall is impossible and the location of an alley makes two side exits more practical.

L PATTERN



The "L" Pattern is the second most efficient stall and aisle arrangement. It is normally used in those instances where straight through traffic is not possible. Note: it is necessary to sacrifice two stalls in order to accommodate one of the entrances.

U PATTERN



The "U" pattern is used in large service operations or where no other arrangement is permissible because of existing neighboring structures or public streets. The "U" tends to centralize service traffic for more efficient control and accessibility to supporting departments.

Fig. 7 Traffic patterns.

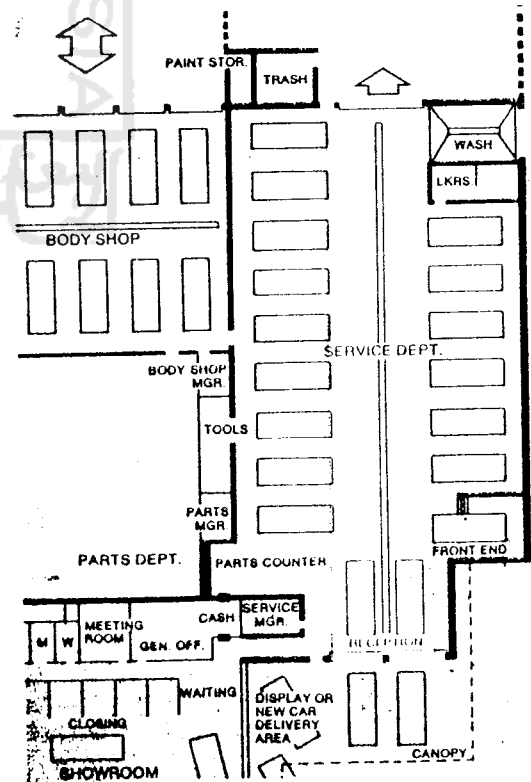


Fig. 8 Center-aisle I pattern.

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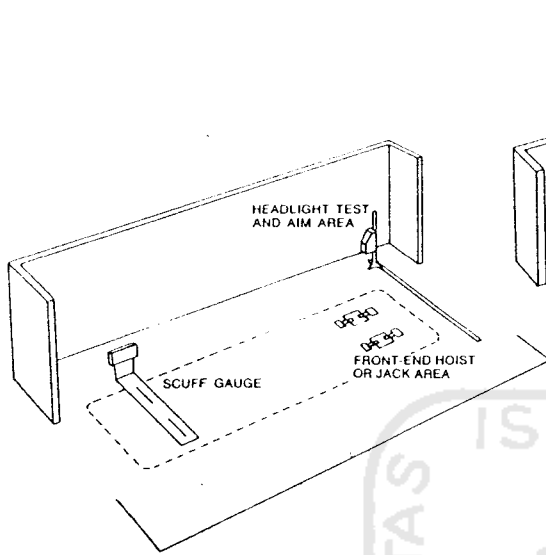


Fig. 13 Single-bay safety inspection station.

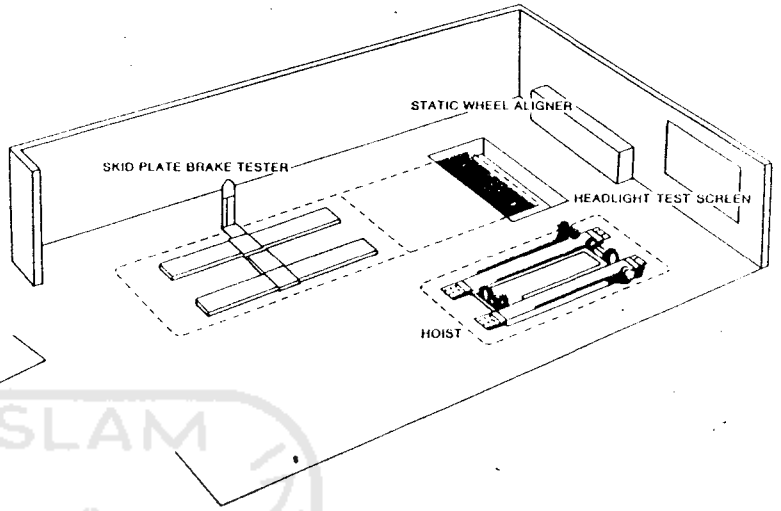


Fig. 14 Two-bay safety inspection station.

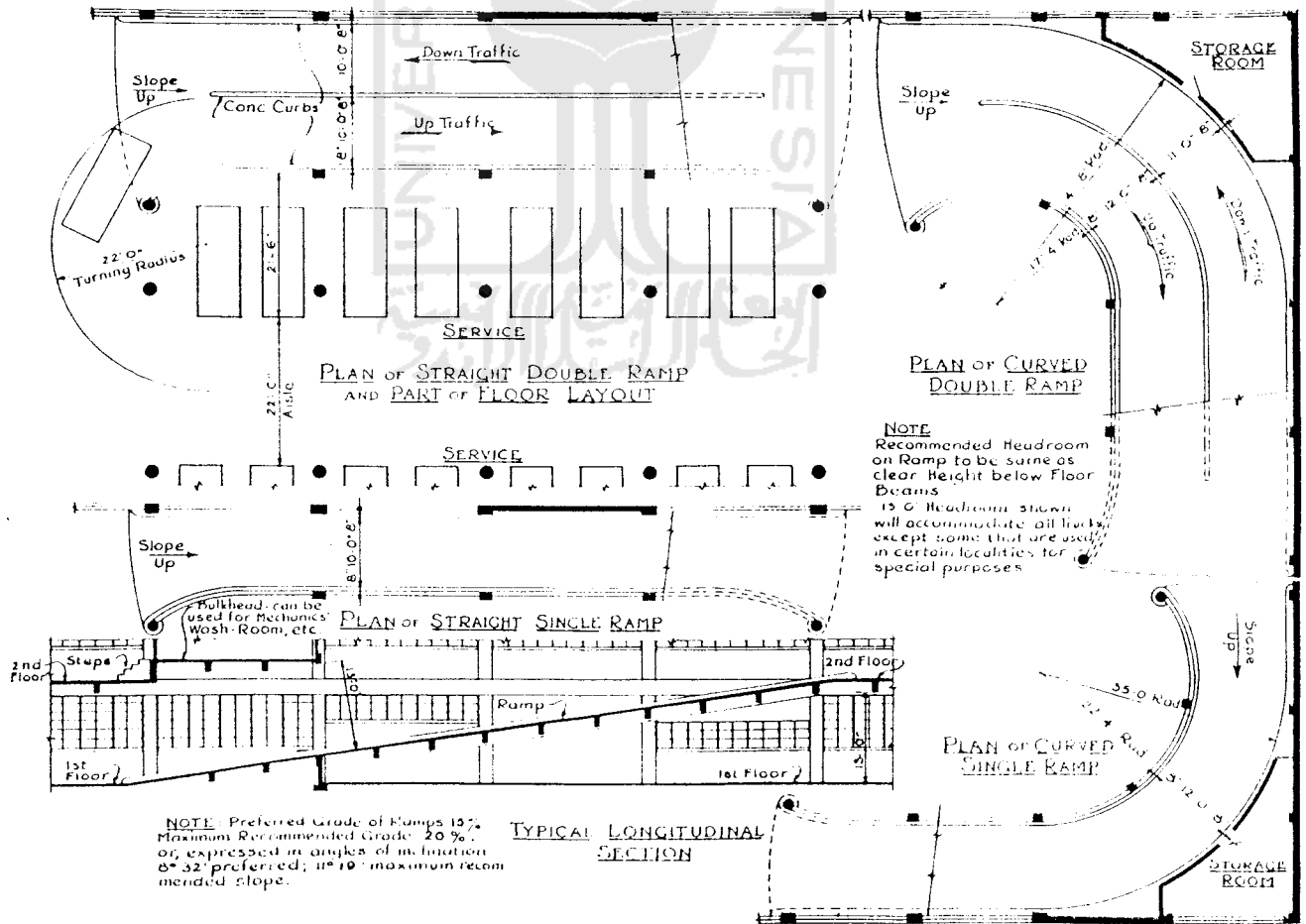


Fig. 15 Ramp design. (Chevrolet Motor Division, Building Department, Detroit, Mich.)

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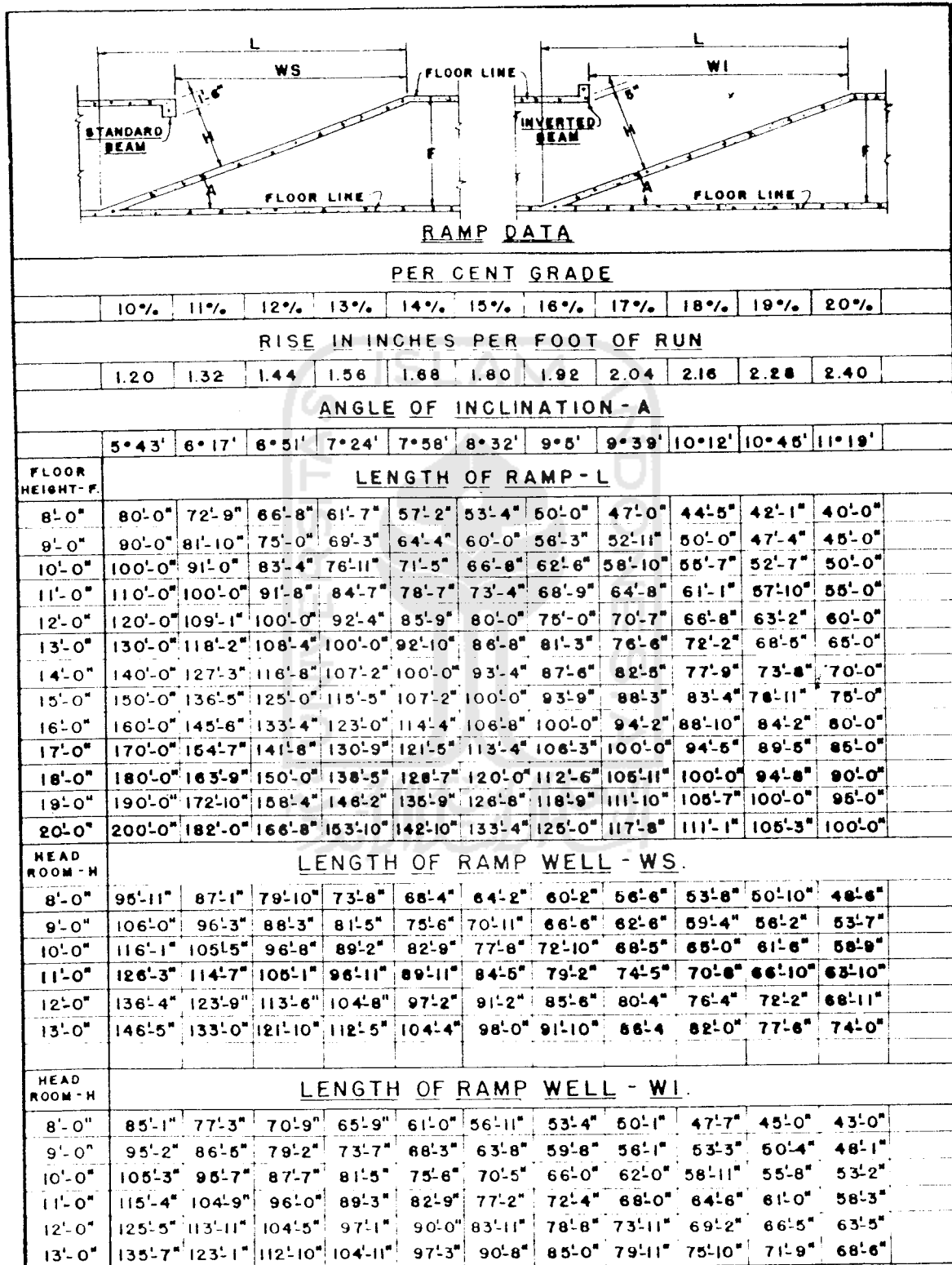

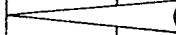

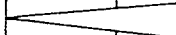

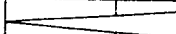

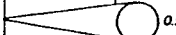



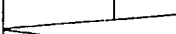

















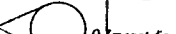

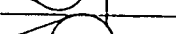




Fig. 15 (cont.) Ramp design. (Chevrolet Motor Division, Building Department, Detroit, Mich.)

The Tungsten Bulb

| Lamp type and beam width | Relative beam throw <small>and spot diameter for 1,000 lux</small> | | | | Approximate light levels <small>at centre of beam at specified distances (in lux)</small> | | | |
|---|---|------|---|-----------------|--|--------|-------|-------|
| | 1m | 2m | 3m | 4m | 1m | 2m | 3m | |
| Narrow beam (10°-25°) | | | | | | | | |
| Crown-silvered (lemon-shaped) lamp in 90mm reflector, 16° |  | 40W |  | 0.5m spot dia. | | 3,000 | 750 | 330 |
| Crown-silvered (GLS-shaped) lamp in 150mm reflector, 12° |  | 60W |  | 0.7m spot dia. | | 7,400 | 1,850 | 820 |
| Crown-silvered (GLS-shaped) lamp in 90mm reflector, 12° |  | 100W |  | 0.8m spot dia. | | 14,500 | 3,600 | 1,600 |
| R25 spot, 22° |  | 75W |  | 0.5m spot dia. | | 1,350 | 330 | 150 |
| R25 spot, 22° |  | 100W |  | 0.55m spot dia. | | 2,000 | 500 | 220 |
| PAR 38 spot, 16° |  | 100W |  | 0.6m spot dia. | | 4,000 | 1,000 | 440 |
| PAR 38 spot, 16° |  | 150W |  | 0.8m spot dia. | | 7,500 | 1,850 | 830 |
| Medium beam (25°-40°) | | | | | | | | |
| R16 Reflector, 30° |  | 40W |  | 0.4m spot dia. | | 425 | 105 | 45 |
| R20 Reflector, 32° |  | 60W |  | 0.5m spot dia. | | 700 | 175 | 80 |
| R30 Reflector, 35° |  | 75W |  | 0.55m spot dia. | | 700 | 175 | 80 |
| R30 Reflector, 35° |  | 100W |  | 0.6m spot dia. | | 1,000 | 250 | 110 |
| R40 Reflector, 35° |  | 150W |  | 0.9m spot dia. | | 2,000 | 500 | 220 |
| PAR 38 Flood, 30° |  | 100W |  | 0.7m spot dia. | | 1,800 | 450 | 200 |
| PAR 38 Flood, 30° |  | 150W |  | 0.9m spot dia. | | 3,100 | 775 | 345 |
| Wide beam (over 40°) | | | | | | | | |
| R60 Reflector, 70° |  | 60W |  | 0.7m spot dia. | | 276 | 70 | 30 |
| R60 Reflector, 70° |  | 75W |  | 0.8m spot dia. | | 360 | 90 | 40 |
| R60 Reflector, 70° |  | 100W |  | 1m spot dia. | | 350 | 135 | 60 |

REFLECTOR LAMPS: TYPICAL BEAM CHARACTERISTICS

This chart shows beam throws and lighting strengths for a range of typical reflector lamps. For the purpose of describing the width of a beam, manufacturers measure the angle between the points in the beam at which the luminous intensity is half that of the beam's centre. To interpret the right-hand side of the chart, showing lighting strengths, bear in mind that normal lighting levels usually fall somewhere between 300 and 500 lux; for accent lighting, a level two or more times this value is required.

BEAM PROFILES

Many manufacturers publish beam profiles for every reflector lamp they produce. The example shown below (for a Thom Decorspot 64) is typical. The vertical scale shows the distance from the light source, while the horizontal scale shows the beam diameter. The white profile is the angle at which the beam intensity is 50% of the illuminance of the beam's centre; this maximum is specified (in lux) for various distances in the central columns. The tinted profile is the angle at which the beam intensity is 10% of the maximum (usually regarded as the limit of useful spill light). Note that information is given for two different wattage ratings in this diagram.

