

Chapter 135. Planning

ARTICLE 8. SITE DESIGN REQUIREMENTS

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135-8.1 General

8.1.1 INTENT

The intent and purpose of this article is to set forth regulations for site plans, and for alternate design documentation when required, that are not covered elsewhere in this chapter, including additional site design, engineering, traffic and circulation, and fire safety requirements.

8.1.2 APPLICABILITY

This article is applicable to all sites and all zoning districts. For purposes of this article, any reference to "site plan(s)" shall include site plans as well as alternate design documentation when required by the community development director.

135-8.2 Site Planning Standards

8.2.1 OUTDOOR SITE LIGHTING

A. Outdoor site lighting, other than building- and canopy-mounted lighting or associated with parking lots, is intended to enhance safety and provide light levels appropriate to the visual task with minimal glare, light trespass, excess site brightness or excess sky glow. Lighting shall not be allowed to create a

nuisance or a hazard.

- B.** Lighting in the public right-of-way shall be provided in the location, intensity, height and quantity as approved by the city engineer.
- C.** All lighting used to illuminate outdoor areas outside of public right-of-way must be installed to prevent glare and light spillover onto streets and abutting property.
- D.** For all lighting used to illuminate outdoor areas outside of public right-of-way, the maximum horizontal illuminance at grade and the maximum vertical illuminance at five feet above grade measured at the property line should not exceed Illuminating Engineering Society of North America (IESNA) recommended practices for light trespass which is 0.5 footcandles for N districts and 2.0 footcandles for commercial and all other districts. The site plan must contain illuminance models showing light levels throughout the site as determined necessary by the community development director.
- E.** For all lighting used to illuminate outdoor areas outside of public right-of-way, freestanding light standards may not exceed 20 feet in height in vehicular areas and a maximum of 15 feet in height in pedestrian areas.

8.2.2 OUTDOOR STORAGE ASSOCIATED WITH INDUSTRIAL USES

- A. All outdoor storage areas shall be designed to allow no part of any stored material, vehicles or equipment to encroach into the required setbacks.
- B. All outdoor storage areas shall be maintained with both a dustless surface, including asphaltic or Portland cement binder pavement or other surface approved by the city engineer, graded to drain properly and a drainage system approved by the city engineer.
- C. All outdoor storage areas shall be set back a minimum of 25 feet from any street frontage and a minimum of 10 feet from all other lot lines.
- D. All outdoor storage areas shall be screened from view of adjacent lots and streets using the medium side and rear buffer per section [135-7.8.3 of this chapter](#), unless adjacent to an N district which requires the use of the heavy buffer per section [135-7.8.4 of this chapter](#).

8.2.3 VEHICLE SALES, VEHICLE RENTAL AND TRUCKING AND TRANSPORTATION TERMINALS

Any portion of the property to be used for outside storage, display or parking of vehicles or equipment shall:

- A. Contain at least one-half acre of land.
- B. Satisfy [article 7 of this chapter](#), Landscape and Streetscape Standards.
- C. Be surfaced in accordance with section [135-6.8.6 of this chapter](#).
- D. Incorporate curbs or other substantial permanent barriers to prevent encroachment into the required setback and landscape areas. Precast wheel stops and other barriers which can be readily moved are excluded.
- E. Not include elevated display in any required front yard.
- F. Clearly designate the employee and customer parking area, which shall not be used for the parking, storage or display of vehicles or equipment for sale, rental or hire.
- G. All portions of the property used for the outside parking, display or storage of vehicles or equipment for sale, rental or hire shall be identified on the site plan and the perimeter shall be striped or otherwise conspicuously marked on the parking surface pursuant to section [135-6.8.4 of this chapter](#).

135-8.3 Engineering Standards

8.3.1 GENERAL

Site plans shall conform to the Iowa State-wide Urban Design and Specifications (SUDAS) and the City of Des Moines General Supplemental Specifications to SUDAS.

8.3.2 SURFACE AND SUBSURFACE DRAINAGE

Proposed development is to make adequate provisions for surface and subsurface drainage. To accomplish this, various stormwater management provisions are required including:

- A. Stormwater detention may be required for developed sites unless it is determined by the city engineer to be unnecessary or impractical. The allowable runoff from a site is equal to that from a five-year return frequency storm on the site prior to any development, such as when totally grassed. Temporary storage must be provided for the difference between the allowable runoff and the runoff from a 100-year storm on the site after development takes place. Proper runoff coefficients should be assigned to each developed area, including paving, building, grass and similar, consistent with Statewide Urban Design and Specifications (SUDAS). Calculations must be certified and submitted by an engineer, architect, or landscape architect registered in the State of Iowa and familiar with detention calculations.

Stormwater detention will be deemed necessary in the following circumstances:

1. Development of a previously undeveloped site larger than 10,000 square feet;
 2. Impervious surfaces reach 10,000 square feet for a previously developed site with no existing approved site plan. Impervious areas added prior to March 22, 2004 will not be counted towards the 10,000 square feet; and
 3. The sum of added impervious areas for multiple site plans exceed 10,000 square feet, at which point detention will be required for the added impervious area. Impervious areas added prior to March 22, 2004 will not be counted towards the 10,000 square feet.
- B. Site plans must show downspout locations and provide for adequate routing.
 - C. Stormwater shall not be directed from driveways into the city right-of-way. Water should either be collected and piped to a storm sewer, or should exit the paving onto a grassed area, providing the grassed area is

large enough to accommodate the stormwater and not cause damage to adjacent property.

- D. Where storm sewer is available, stormwater and footing drains must be piped to the city system.
- E. Stormwater accommodations and lighting may be located in the area between the back of curb and the sidewalk, as determined by the community development director and city engineer.
- F. Stormwater quality requirements in chapter 106 of this code shall be applicable to site plans when the disturbed area exceeds one acre in area.
- G. Sustainable stormwater management practices, such as rain gardens, bioswales, permeable pavement, or other similar technologies, may be utilized and may be required when determined reasonably practicable by the city engineer.
- H. Development shall conform with chapter 50 of this code for floodplain development.

For the purposes of this section, impervious areas and surfaces shall be determined using all building permits issued by the city's permit and development center, county assessor's records, and other documentation determined necessary by the community development director.

8.3.3 GRADING

Generally, site plans are not approved until either an approved grading plan, as required by article 2, chapter 42 of this code, or grading waiver is on file with the city engineer. The site plan is used as the grading plan when the necessary information is shown.

- A. When improvement plans are required for the installation of public improvements, the site plan will not be approved until these plans and three-party contracts have been submitted and substantially approved by the city engineer.
- B. To help alleviate erosion and maintenance problems, recommended maximum ground slope is to be 3:1, desirable being 4:1.
- C. Recommended maximum slope for parking lots is 5% in a direction perpendicular to the car. Recommended maximum slope for driveways is 10%.

8.3.4 PAVING THICKNESSES

Paving thicknesses are suggested based on good subgrade conditions according to [Table 135-8.3-1 of this article](#). Paving thicknesses must be increased in order to allow for areas of poor subgrade material. Parking lots may be less than the suggested paving thicknesses if justified in writing by an engineer, registered in the

State of Iowa and approved by the city engineering department.

TABLE 135-8.3-1. PAVING THICKNESSES

Parking Lot	Total Portland Cement Concrete	Total Hot-Mix Asphalt	Total Asphalt
50 stalls or less	5.0 inches	5.0 inches	5.0 inches
More than 50 stalls	6.0 inches	6.5 inches	6.5 inches
Trucks	7.0 inches	8.0 inches	8.0 inches

8.3.5 SANITATION

Site plans shall conform to the Iowa State-wide Urban Design and Specifications (SUDAS) and the City of Des Moines General Supplemental Specifications to SUDAS, Des Moines Metropolitan Design Standards Manual, and the Standard Specifications for Construction of Public Improvement.

- A. Any site plan proposing an on-site private sewage disposal system must provide a design prepared and certified by a professional engineer licensed in the State of Iowa. The design, construction, and maintenance of the system must comply with Chapter 69 of the Environmental Protection Agency [567] of the Iowa Administrative Code.
- B. No site plan for a proposed residential use shall be approved if there is inadequate sanitary sewer capacity or if the development will use an unfair share of the sanitary sewer capacity available to land within the applicable sanitary sewer district.

135-8.4 Fire Safety Standards

8.4.1 GENERAL

- A. Site plans shall conform to chapter 46 of this code which adopts the International Fire Code (IFC) with local amendments. Requirements for fire department access can be found in Chapter 5 and Appendix D of the IFC.
- B. A separate sheet or plan included in the site plan shall be drawn and include all of the following required information, when applicable:
 1. The sheet shall be titled "Fire".
 2. Building construction type, as defined by the International Building Code (IBC), as adopted by reference in chapters 26 and 46 of this code.
 3. Building occupancy, as defined by the IBC, as

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adopted by reference in chapters 26 and 46 of this code.

4. Total building square footage and number of household units if applicable.
5. Building height and number of stories.
6. Any existing or proposed water mains and the nearest existing or proposed fire hydrants.
7. The water flow test data, including static and residual pressures and the flow amount for the residual pressure or other information as required by the city fire marshal, for the water main(s) servicing or adjacent to the project.
8. Location of the water service to the building.
9. An indication of whether the project includes or will install fire sprinklers, including:
 - a. Location of the water service and riser room; and
 - b. Location of any Fire Department connection(s).
10. An indication of any proposed on-site fire department access, and where applicable, aerial access roads. Public streets may be utilized to meet fire department and aerial access road requirements. Where public streets do not meet the prescriptive code requirements, on-site roads will be required. Where on-site access roads are proposed, the following shall be provided:
 - a. Width;
 - b. Pavement loading capacity; and
 - c. Pavement markings or identification

8.5.3 TRAFFIC ELEMENTS

- A. Modifications of traffic islands, medians, traffic signals, and similar traffic elements, that are needed because of the proposed development are to be paid for by the developer.
- B. In order to develop sufficient geometric designs and provide effective traffic flow, a minimum of 600 feet between median openings and 0.25 mile or 0.5 mile spacing of traffic signals on major arterial streets shall be provided.
- C. The site plan shall indicate vision clearance triangles in accordance with section 114-14 of this code or as required by the city engineer.

135-8.5 Traffic and Circulation Standards

8.5.1 GENERAL

- A. Site plans along applicable street typologies identified in the city's transportation master plan, are to allow for access between adjoining commercial properties via a system of private frontage drives, as determined by the city engineer.
- B. Proposed development shall comply with the city's traffic analysis policy.

8.5.2 SIDEWALKS

- A. Sidewalks are required as identified in the city's transportation master plan. Location and materials for existing and proposed sidewalks shall be shown on any site plan or required alternate design documentation.