

POTENTIAL BUILDING STANDARDS

HOUSTON HISTORIC DISTRICTS DESIGN GUIDELINES STRATEGY PAPER

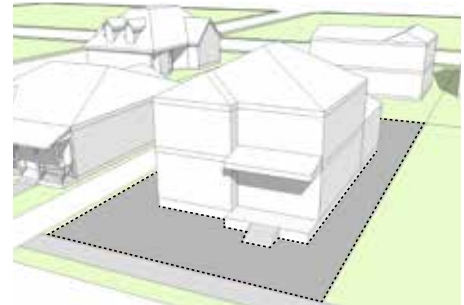
SECTION 4

INTRODUCTION

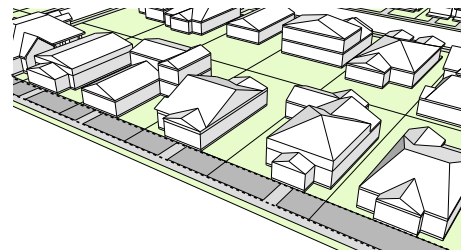
The design guidelines for each historic district will address ways in which additions and new buildings may be designed to be compatible in terms of setbacks, scale and proportion, and height. Some of the measurable design tools that could be used to promote compatibility are discussed in this section. The focus is on those design variables that can be measured.

A few caveats: Several measurable design tools are presented here. Not all of these are recommended to be used. The intent of this section is to document all that were considered. Those tools that are proposed to be used are described in Section 6. Note that the images illustrating how these tools work may not reflect designs that would be appropriate in some historic districts. Finally, some of these tools already appear in some existing deed restrictions and design guidelines.

This section begins with descriptions of some of the more basic tools for wall height and length, and then presents tools that address building size and massing. It concludes with tools related to site planning.



A building's size can be set to be in proportion to its lot size. (See discussion of Floor Area Ratio.)



Maintaining uniform setbacks can be a requirement.

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BUILDING DESIGN TOOLS

Building Height Limits

Definition and Intent

A height limit sets the maximum vertical dimension of a wall, roof ridge, or other vertical feature. This measurement is taken from a pre-determined point, such as “at grade, next to the building,” to ensure consistency throughout. The intent of building height limits is to keep height within a range that is compatible with the context area. Building height is limited in the deed restrictions for Woodland Heights, Norhill, Houston Heights Historic Districts (East, West, and South), and Old Sixth Ward Protected Historic District.

These types of height limits are often used:

- **Ridge Height:** This is the maximum height to the highest point of a structure (although some features may be excluded, such as a tower or decorative railing).
- **Height to the Mid-Point of a Roof:** Historically, this was often set to assure access by firefighter’s ladders. It has become a standard way of measuring height in some communities. Houston does not use this measure at present.
- **Height of a Wall:** This is often used when addressing height at minimum building setback lines, especially along the sides of properties, where wall height can be an important factor in looming effects. (Some neighborhood deed restrictions use a variation of this concept.)
- **Plate Height:** The ordinance states that this is the distance from the subfloor of a building to the top of the framed wall.

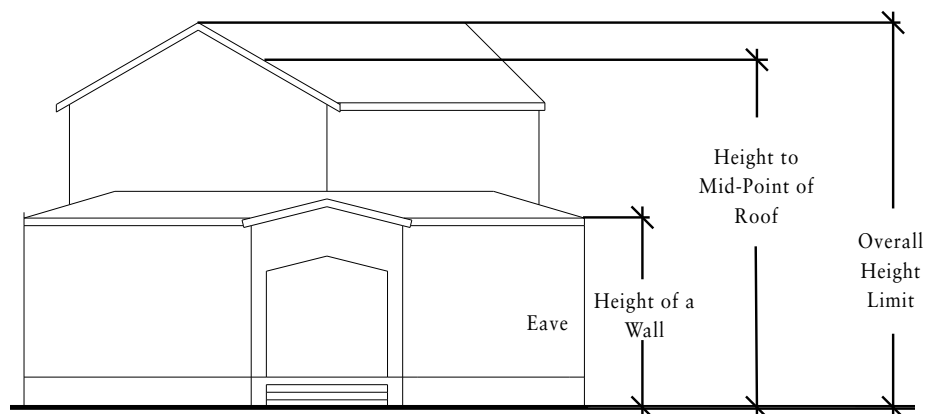


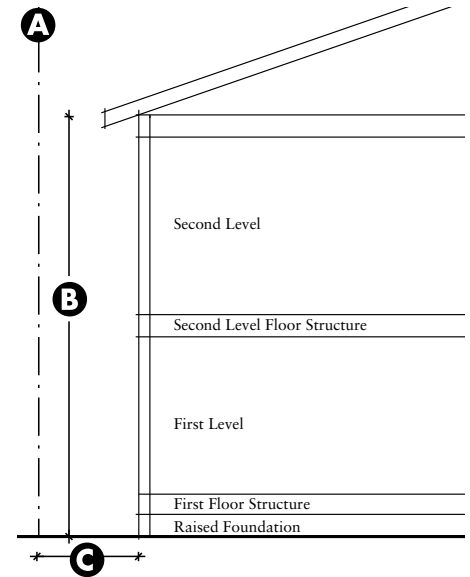
Diagram showing different height measurements

Advantages of Building Height Limits

- Helps ensure that structures do not loom over their neighbors
- Relatively easy to understand and calculate
- Can provide an incentive to use specific roof forms that are consistent with neighborhood character (i.e., height may be calculated to the mid-point of a sloped roof to encourage pitched roof forms)

Observations

- To be effective, must be combined with other standards related to building size and massing
- Requires that methods of measurement be consistent
- Can limit height while still providing flexibility in size and style
- Note that the ordinance provides that a historic district may prohibit two-story buildings if the entire district is one-story.

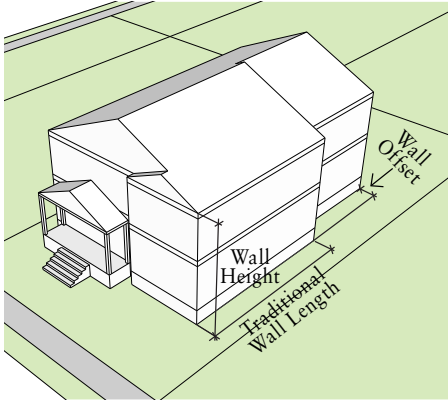


A - Property Line

B - Maximum Wall Height at Minimum Setback

C - Minimum Side Setback Distance

Horizontal Wall Offset



Horizontal wall offset

Definition and Intent

A horizontal wall offset standard establishes a maximum wall length, after which an inset in wall plane must occur. A Horizontal Wall Offset tool can encourage a building form that appears similar in massing to neighboring contributing structures. This can reduce the “looming” impact into a neighboring side yard. When the maximum wall length is similar to traditional side wall lengths of historic buildings in the historic district, a new building may appear to be in scale with its neighbors as seen from the street. This type of offset also helps to maintain some open space in the rear yard.

A horizontal wall offset standard is intended to reduce the perceived mass of a house and to reflect the scale of smaller buildings that are a part of the context area. By setting a maximum wall length before an offset must occur, a larger structure may be sculpted to fit with smaller traditional buildings.

Advantages of Wall Offsets

- Helps ensure that a structure does not loom over its neighbor
- Reduces the perceived mass and scale of a new building

Observations

- Is particularly useful in reducing perceived size of two-story buildings
- May not be needed in a historic district that is exclusively one-story in height

Vertical Wall Offset

Definition and Intent

A Vertical Wall Offset standard sets a maximum permitted height before a step back must occur. Wall height is usually measured from either grade or the first finished floor to the highest horizontal framing member, or wall plate. This is usually the point at which the roof eave meets the wall.

Wall height standards are often tied to minimum setbacks to help ensure that taller building elements are located away from the edges of a lot. A Vertical Wall Offset standard can shape the building form in a way that is similar to a Maximum Building Envelope tool (described later). Many wall offset standards allow a one-foot increase in height for each foot of additional setback.

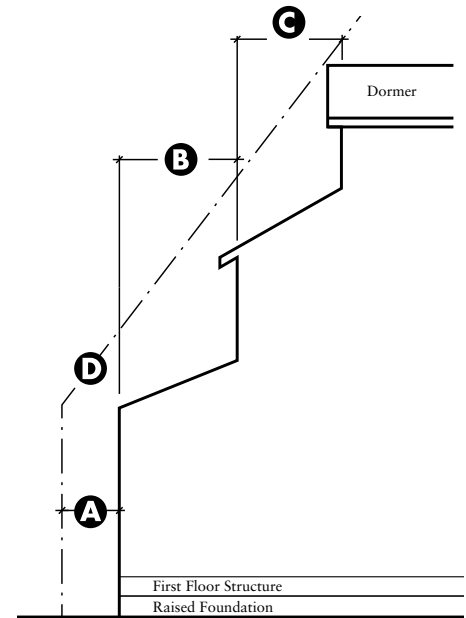
The intent of a vertical wall offset standard is to reduce the perceived mass of a building as seen by neighbors and to reflect the scale of smaller building forms that may be a part of the context area. Limiting the extent to which a tall wall can loom over neighbors can help to minimize visual impacts of larger buildings. By setting the appropriate wall height before a step back in height must occur, a larger structure may be *sculpted* to fit within the context area of smaller traditional buildings.

Advantages of Wall Offsets

- Helps ensure that a structure does not loom over its neighbor
- Reduces the perceived mass and scale of a new building
- Allows the height to increase as the distance from the property line increases

Observations

- Vertical wall offsets encourages variations in building forms.
- Yields a result similar to a maximum building envelope tool that uses a sloping form (described later)



Vertical wall height standards:

- A - Required Min. Setback from Property Line
- B - Vertical Wall Offset for Second Floor
- C - Vertical Wall Offset for Third Floor
- D - Angle of Vertical Wall Offset Standard

One-Story Element

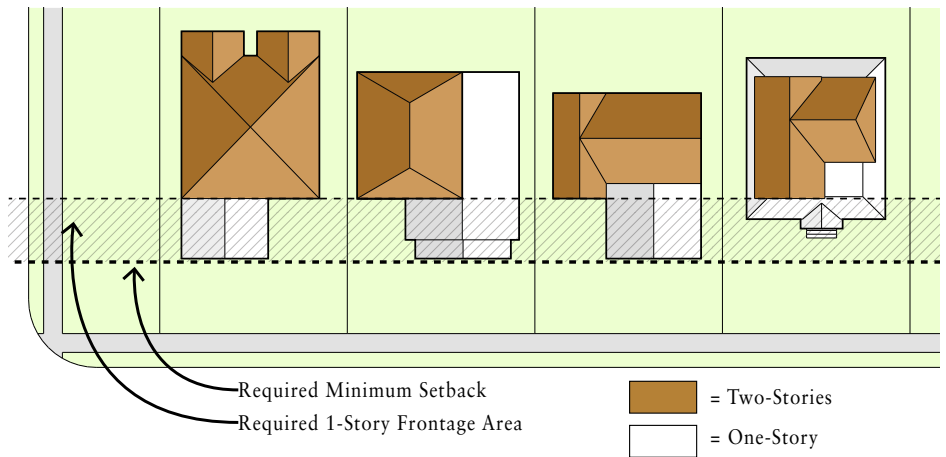


Porches as one-story elements

Definition and Intent

A one-story element is a portion of a building that is one story in height. It can be located along a building front or side wall in order to help reduce the apparent mass of a taller structure. As an alternative to requiring a one-story element, an incentive can also be included in a Floor Area Ratio limit (discussed later) or a building envelope standard to encourage using one-story elements. Currently none of the historic districts has an explicit one-story element requirement, but the deed restrictions in Norhill, Houston Heights (East, West, and South) and the design guidelines in Old Sixth Ward do require front porches.

In many parts of the historic districts, buildings have one-story elements on the street-facing façade, which reduces perceived scale. Using a tool that encourages, or requires, having a one-story element could protect this traditional pattern while allowing taller heights in other parts of a site. Requiring a one-story space or porch on the front of a residence may reduce the perceived mass of the building and match the traditional scale of the context area.



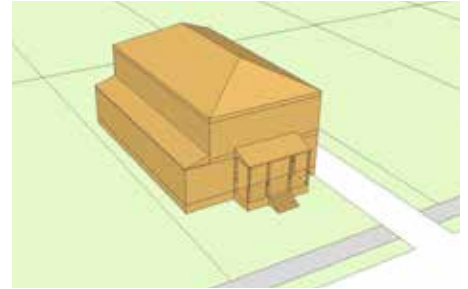
Sometimes a “One-Story Frontage Area” is used in setback standards. This limits height in that area to one story.

Advantages of One-Story Element

- Reduces the perceived mass and scale of a structure
- Creates a consistent scale along the street
- Matches traditional patterns of development

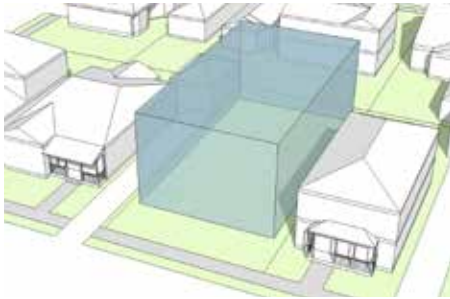
Observations

- Could limit buildable area on short-depth lots
- Many communities consider out-of-scale porches and two-story front façades to be inappropriate. This tool could ensure consistent scale at the street level while providing an increase in mass toward the middle or rear of a lot.
- May not be needed in a district that limits overall height to one story

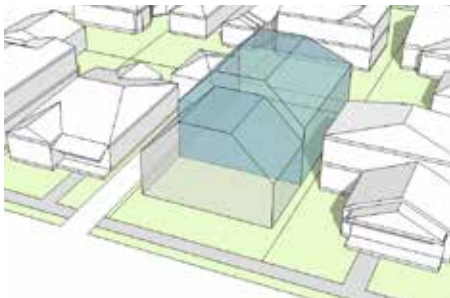


A one-story element on the side of a residence may reduce the perceived mass of the building for its neighbor.

Maximum Building Envelope



A building envelope defines the area in which a structure can be built. In this example a maximum height limit and minimum building setbacks create a rectilinear envelope.



This building envelope has a lower form in the front. This may be useful where one-story houses are the tradition. It also includes a sloping side plane, which shifts taller parts of a building to the center of the lot.

Definition and Intent

A maximum building envelope, sometimes called a *bulk plane* or *encroachment plane*, is a boundary beyond which a primary structure may not extend. A building envelope can be tailored to shift some portion of the mass of a building to a preferred location on a site, such as moving a taller part of a house away from neighbors. Another option is to limit height in the front portion of a site to a lower scale than that in the rear. While no deed restrictions explicitly define a building envelope, the setbacks and height limits stipulated in them in effect create a building envelope, as in Houston Heights Historic Districts (East, West, and South). Design guidelines in Old Sixth Ward Protected Historic District establish a sloped building envelope by allowing building height to increase as setbacks increase.

Some uninhabited spaces and other building elements may be permitted to extend outside the building envelope such as:

- Chimneys
- Dormers (often limited in size)
- Solar panels
- Eaves
- Porches
- Gargages

A sloped maximum building envelope is intended to shift taller portions of the mass of a structure toward the center of the lot. This may help to maintain the perception of a traditional scale along the street and minimize a “looming” effect upon neighbors.

Advantages of Maximum Building Envelope

- Restricts taller building mass to less sensitive parts of a lot
- Helps reduce the potential of tall walls adversely affecting neighbors
- Can be combined with lot coverage and floor area ratio standards to mitigate mass and scale impacts while encouraging creative design solutions

Observations

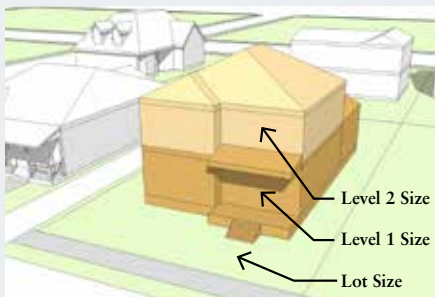
- Must be dimensioned to accommodate the range of heights seen on contributors in a historic district.
- The building envelope tool is particularly useful for accommodating a moderately larger house within a lower-scaled area while providing flexibility in building form and style.
- Must be tailored to address oddly shaped lots



This envelope slopes in from the side property lines, moving taller portions of the mass away from neighbors, reducing the “looming” effect.

Floor Area Ratio (FAR)

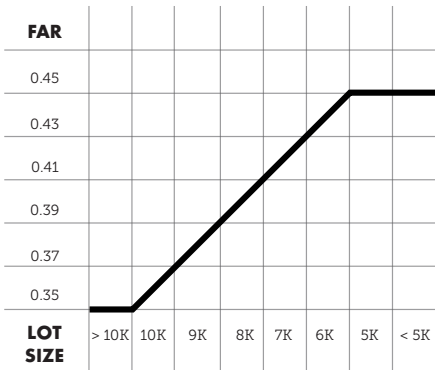
CALCULATING FAR



Level 1 Size = 1250 sqft.
 + Level 2 Size = 750 sqft.
 Lot Size = 5,000 sqft.

 FAR = (2,000) / 5,000 = 0.40 FAR

FAR / LOT SIZE CHART



FAR rules typically have a cap that sets a maximum house size for very large lots. A minimum house size also is provided to assure that even on the smallest lots a functional house is permitted. In this example, a straight line curve changes the ratio as lot size increases.

Definition and Intent

A FAR standard sets the total square footage of primary, and sometimes all, structures that is permitted as a percentage of lot size. The concept is that a structure will be more compatible when it is in proportion to its lot. FAR is generally expressed to the second decimal place, calculated by dividing the total building square footage by the total lot square footage. For example, a building size of 2,000 sqft divided by its lot size of 5,000 sqft equals an FAR of 0.40. FAR rules typically have a *cap* that sets a maximum house size for very large lots. A minimum house size also is provided to assure that even on the smallest lots, a functional house will be built.

FAR applies to all construction, including new buildings and additions to existing ones. A FAR standard does not affect the form of a house. When the FAR is coordinated with height and building coverage limits, variation in building form is possible. That is, different design solutions, with varying massing arrangements, can occur.

Some building area may be excluded from FAR calculations (in part or in whole), to provide additional flexibility or to promote use of specific design elements. These exceptions may include:

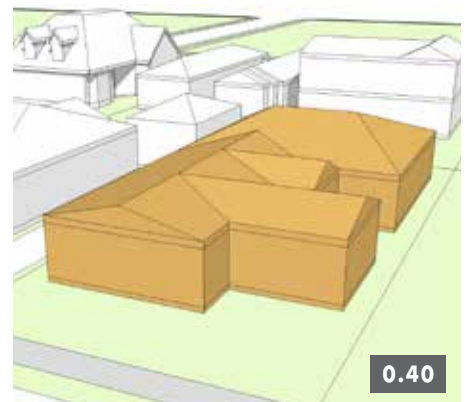
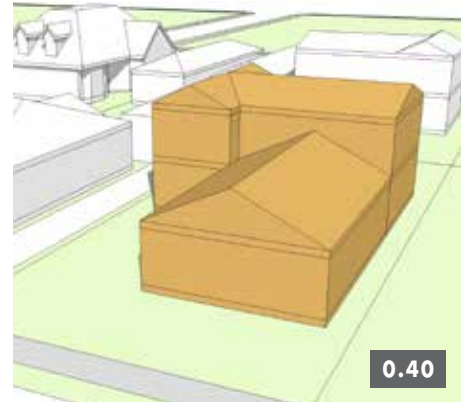
- Accessory structures (including garages)
- Attic space
- Roofed porches

Advantages of a Floor Area Ratio

- Directly relates the size of a structure to the size of the lot
- Is relatively easy to understand and calculate
- Can be combined with lot coverage and height limits to reduce the overall scale of a structure
- Can provide an incentive to include front porches or detached garages and accessory structures (by discounting them) in designs

Observations

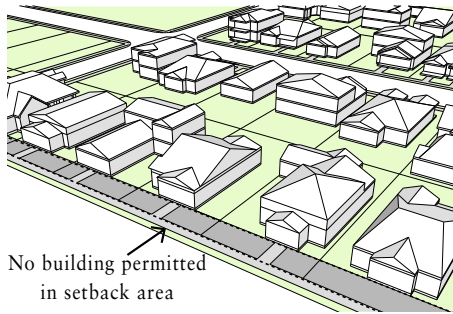
- Must be dimensioned to accommodate the range of heights that are appropriate to a historic district
- In historic districts with consistent lot sizes, a floor area ratio can relate the size of a structure to its neighbors.
- Floor Area Ratio does not affect the form or style of a building.
- Must be combined with other standards related to building size and massing to be effective



All three illustrations show an FAR of 0.40 in different design configurations.

SITE DESIGN TOOLS

Minimum Building Setback



No building permitted
in setback area

A front building setback requirement creates a consistent streetscape that is compatible with existing contributing structures.

Definition and Intent

A minimum building setback standard limits how close a building may be placed to the front, sides or rear of a lot. The setback can be calculated in three ways; 1) there can be a set number for the distance from the property line, 2) an *average* dimension for the front setback that is calculated from the surrounding context area, or 3) a permitted *range* for the distance from the property line to the structure where a variety in setbacks is a part of the historic character. Taken together, front, side and rear setback standards define the area of the lot where structures may be built. In some cases, a porch element may be permitted to encroach into the front building setback if such a pattern is seen traditionally in the area. Minimum building setbacks are already utilized in some deed restrictions.

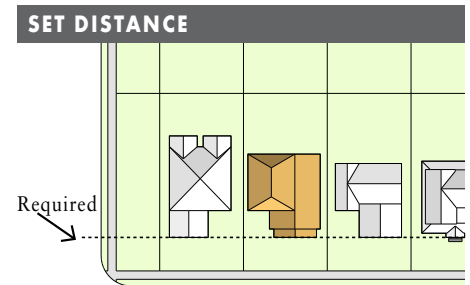
A building setback is intended to maintain the traditional alignment of contributing structures. By determining how far a structure must be built from the front property line a consistent lawn area is established. This tool encourages a pedestrian friendly street edge and provides open space to the sides and rear of a lot.

Advantages of Building Setback

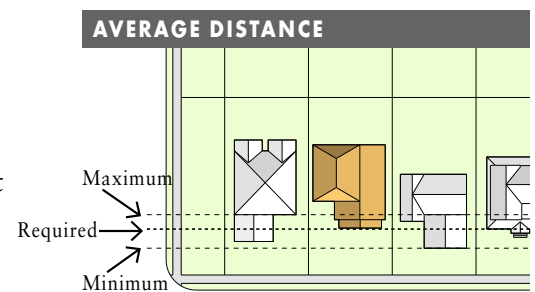
- Front setbacks help maintain a streetscape rhythm.
- Side and rear setback standards protect privacy (especially when new construction involves a two-story building) by ensuring that buildings on adjoining lots are separated by a minimum distance.
- Exemptions can also promote desirable design elements such as front porches or buildings that step down towards their neighbors (i.e. allowing front porches to encroach into the setback or providing different side setback standards for one and two-story building elements).
- Retains open space on a site.

Observations

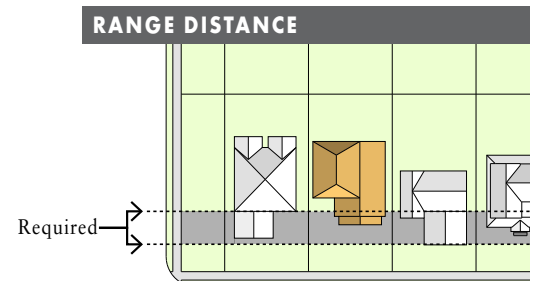
- May require adjustment in an area with varied setbacks
- Many historic districts have a strong alignment of front porches and front walls. This tool ensures compatibility in site placement while allowing flexibility in mass and form.



The setback can be calculated as a set number from the property line.



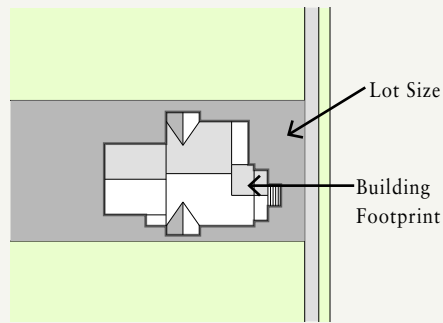
The setback can be an average dimension for the front setback that is calculated from those of the contributing structures in the context area.



The setback can be calculated as a permitted range for the distance from the property line to the structure where a variety in setbacks is a part of the historic character.

Lot Coverage

CALCULATING LOT COVERAGE



Building Footprint = 2,250 sqft.

Lot Size = 5,000 sqft.

Lot Coverage = $2,250 / 5,000$

Lot Coverage = 45%

Definition and Intent

Lot coverage standards establish the maximum percentage of a lot surface that may be covered by structures. This is calculated by dividing the building footprint of all structures on a lot by the total lot size. For example, a building footprint of 2,250 sqft. divided by its lot size of 5,000 sqft will yield a lot coverage of 45%. Lot coverage is intended to assure a minimum amount of open space on a parcel and to encourage retaining yard area. Limits on lot coverage appear in the deed restrictions of the Norhill Neighborhood Association.

Some elements may be exempt (in part or in whole) from building coverage to provide flexibility in design or to promote using specific design features.

These may be exempt:

- Roof overhangs
- Accessory structure
- Roofed front porch
- Any deck or patio area that is not roofed
- A gazebo that is not enclosed on more than two sides

Advantages of Lot Coverage

- Helps maintain open space
- Helps preserve side and rear yards
- Reduces privacy impacts by discouraging larger structures from extending substantially into the rear yard
- Can provide an incentive to include front porches or detached garages and accessory structures by discounting them

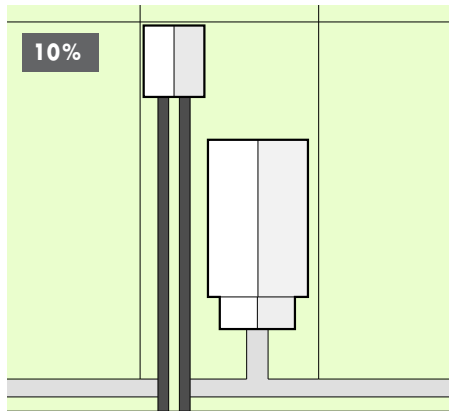
Observations

- Could encourage taller structures if not combined with specific height or floor area ratio standards
- Historic districts that consider loss of open space to be a concern would see a benefit in this tool.
- Could incentivize parking in the rear by exempting a rear-located garage from the calculations
- May also reduce pressure to remove mature trees



Lot coverage limits the maximum area of the footprint of a building. This also sets the minimum amount of open space on a parcel. The three examples above illustrate the same building coverage percentage in three different house designs.

Impervious Surface Limits

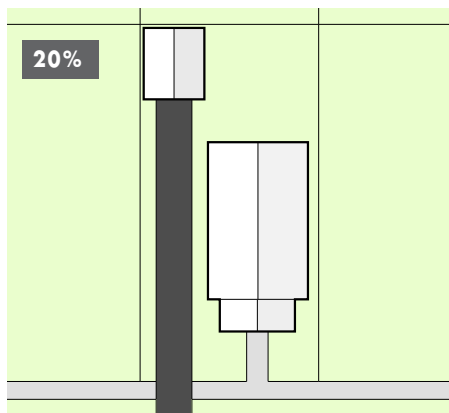


Definition and Intent

A maximum impervious surface standard limits the amount of non-porous paving on a site. This tool is a measurement of the percentage of hard surfaces that are allowed on the property. It can help maintain the sense of green space on a parcel and limit storm water run-off onto neighboring properties. Note that this is not regulated under the ordinance, but some property owners expressed interest in addressing this topic.

Intent

The intent of a maximum impervious surface limit is to minimize storm water runoff and maintain green space.

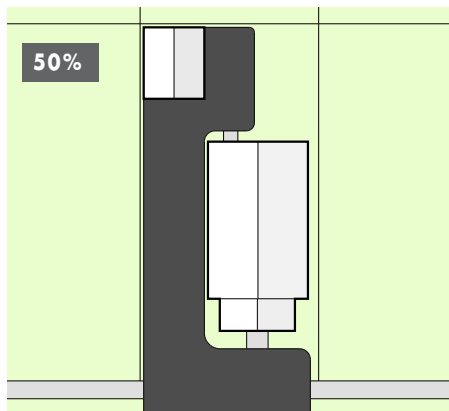


Advantages of Impervious Surface Limits

- Mitigates water runoff
- Encourages a pedestrian-friendly street edge

Observations

- Considering water runoff issues in several historic districts, impervious surface limits could be beneficial.
- Impervious surface limits may help retain open space and preserve historic landscaping.
- Could be addressed in advisory guidelines as best practices



■ = Impervious Paving

Permeability standards determine the amount of impervious surfaces on a property. These sketches illustrate three different conditions of impermeable surfaces and how they relate to driveway design.

Parking Location Standards

Definition and Intent

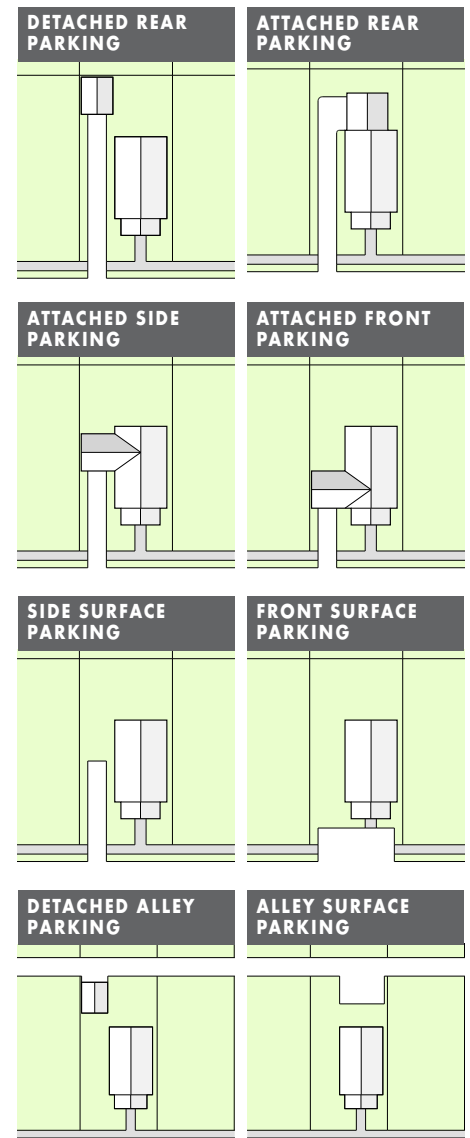
A parking location standard addresses the location, size and design of on-site vehicular use areas. Parking location standards are intended to minimize the visual impact of vehicles and maintain traditional parking patterns. Some parking design standards require using an alley to access parking where this pattern is a part of the neighborhood character. Where parking must be accessed from a street, design standards may minimize the visual impacts of curb cuts, driveways, and garages. Parking design standards also can limit the amount of paved surface allowed in the front yard by limiting the width and number of curb cuts. Note that the Historic Preservation Ordinance does not regulate paving or parking except carports and garages.

Advantages of Parking Location Standards

- Ensures street presence is consistent with traditional character
- Provides safe and orderly pedestrian and vehicle environment
- Minimizes visual impact of vehicles from the street and on the property
- Minimizes the visual impact of cars and service areas on adjacent properties

Observations

- Defining the location of parking could retain the traditional appearance from the street.
- May also prevent mature street trees from being displaced



A number of different parking conditions can be addressed in design standards. Different locations can be tailored to individual historic districts or sub-areas within them.

