



# Houston Historic Districts Design Guidelines Project

## POTENTIAL DESIGN TOOLS

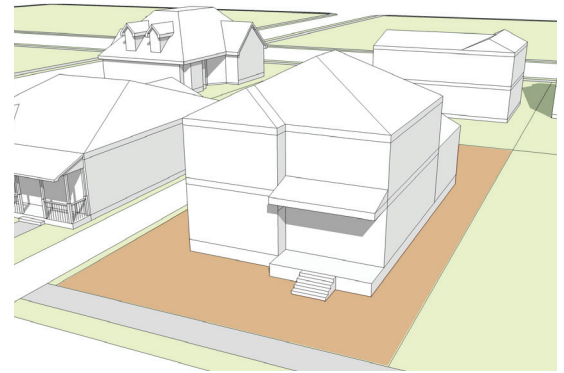
### Introduction

The City of Houston regulates changes to properties in locally designated historic districts through a review of proposed projects before they are built. This includes alterations to the exterior of buildings, additions, demolitions, relocations, and new construction. If approved, the project receives a Certificate of Appropriateness (COA) from the Planning Department and the Houston Archeological and Historical Commission (HAHC).

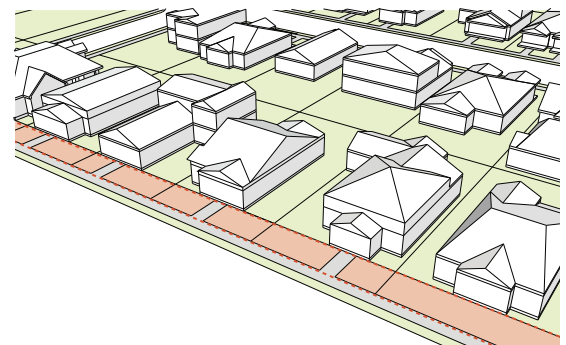
In order to help property owners in historic districts plan such projects, the City is developing design guidelines for seven historic districts to illustrate the criteria that the Planning Department and HAHC use to evaluate COA applications. The three Houston Heights Historic Districts (East, West, and South) will share one set of guidelines, while the Norhill, Freeland, Woodland Heights, and Old Sixth Ward Historic Districts will each have their own design guidelines.

One section of the guidelines for each historic district will address ways to design additions and new buildings so that they are compatible with surrounding properties in the district, in terms of setbacks, scale and proportion, and height. Some of the design tools that could be used to determine compatibility are discussed in this paper. It focuses on those design and construction variables that can be measured, while also considering qualitative aspects of the context area (the blockface on which the proposed project will be located, as well as the opposing blockface).

*A few caveats: Although a variety of design tools are presented here, this does not imply that any or all of them will necessarily be used in Houston. Some design tools might work in all seven historic districts, while others might only apply to one or a few districts. Also, the images used to illustrate how these tools work may not reflect designs that would be appropriate in some historic districts. Finally, some of these tools are already being used in the deed restrictions for one or more of the seven historic districts.*



*The proportion of a building's size can be set to be in proportion to its lot size.*

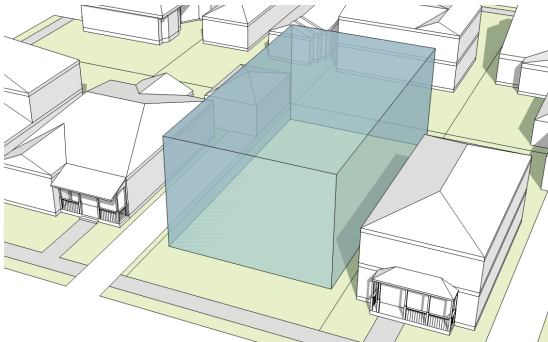


*Maintaining uniform setbacks can be a requirement in some districts.*

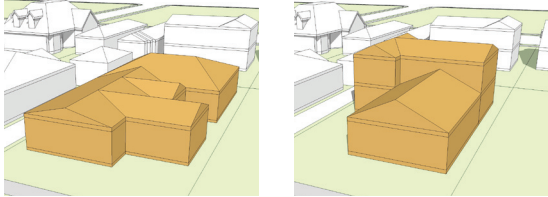


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## POTENTIAL DESIGN TOOLS



Minimum setbacks and height limits define a “building envelope,” within which a structure must fit.



These two buildings have similarly sized footprints and sit on lots of the same size. They have identical ratios of Building Coverage.

## Document Organization

The design tools described in this paper are organized into two levels: Site-level tools and Building-level tools. Site-level tools focus on how a building is located on a site and how other improvements, such as parking and drainage, are treated. Site-level tools focus on things like:

- Lot coverage
- Building setback (distance from property lines)
- Amount of pervious (porous) surface
- Parking standards

Building-level tools focus on the mass and scale of a building, as perceived from the street and by neighbors. Building-level tools deal with things like:

- Maximum building envelope (the exterior walls, roof, windows, etc. that enclose interior spaces)
- Floor Area Ratio (the square footage of livable space vs. the area of the lot in square feet)
- Building height limits
- Wall height and length
- One-story element (such as a front porch or a building mass)



# POTENTIAL DESIGN TOOLS

## BUILDING LEVEL TOOLS

### Maximum Building Envelope

#### Definition

A Building Envelope, sometimes called a bulk plane or encroachment plane, is a boundary beyond which a structure may not extend. At its simplest form, it is defined by the minimum building setbacks for front, side and rear yards, combined with the maximum permitted building height. A building envelope can be further tailored to shift some portions of the mass of a building to preferred locations on a site, such as moving taller parts of a house away from neighbors. Another variation may limit height in the front portion of a site to a lower scale than that in the rear. While none of the deed restrictions in the districts explicitly define a building envelope, the setbacks and height limits stipulated in effect create a building envelope. For example, deed restrictions in Houston Heights (East, West, and South) and Old Sixth Ward 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:

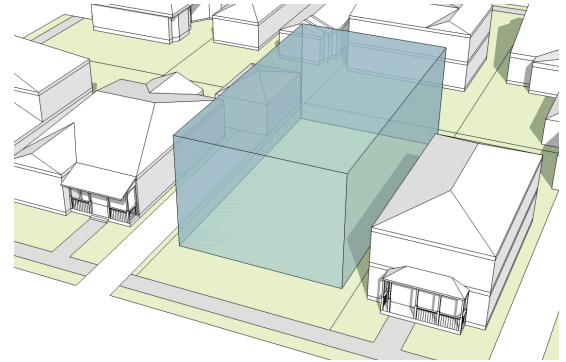
- Chimneys
- Dormers (often limited in size)
- Solar panels
- Eaves
- Porches

#### Intent

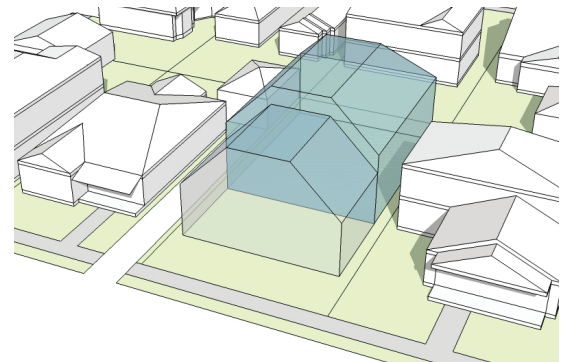
A maximum building envelope is intended to shift taller portions of the mass of a structure towards the center of the lot. This may help to maintain the perception of a traditional scale along the street and minimize a “looming” effect upon neighbors.

#### Advantages of Maximum Building Envelope

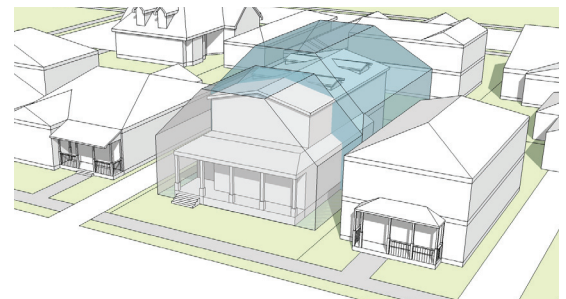
- Restricts taller building mass to certain portions of a lot
- Helps reduce the potential of tall walls adversely affecting neighbors
- Can be combined with lot coverage and floor area ratio standards to mitigate mass and scale impacts while encouraging creative design solutions



*A building envelope defines the area in which a structure can be built. This building envelope illustrates how a maximum height limit and minimum building setbacks can define a rectilinear envelope.*



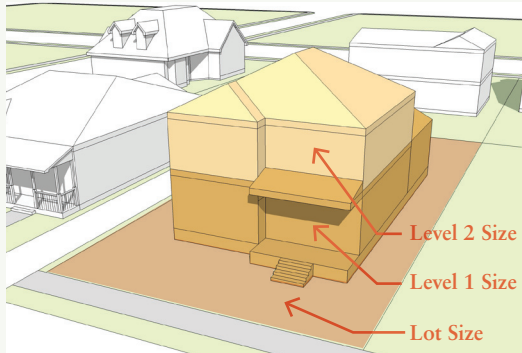
*This building envelope has a lower form in the front. This may be useful in areas where one-story houses are the tradition and keeping that sense of scale from the street is important.*



*This envelope slopes in from the side property lines, moving taller portions of the mass away from neighbors.*



## CALCULATING FAR



Level 1 Size = 1250 sqft.  
 + Level 2 Size = 750 sqft.  
 -----  
 Lot Size = 5,000 sqft.                      2,000 sqft.  
 FAR = (2,000) / 5,000 = 0.40 FAR

## Floor Area Ratio (FAR)

### Definition

A Floor Area Ratio standard limits the total square footage of primary, and sometimes all, structures on a lot to be in proportion to the lot size. FAR is generally expressed as two decimal digits, 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 will equal an FAR of 0.40.

An FAR standard does not alter the three-dimensional form in which a structure may be built. When the FAR is coordinated with height and building coverage limits then there is the opportunity for variation in building form. That is, different design solutions, with varying massing arrangements, can occur. Currently, FAR is not utilized in the deed restrictions of Norhill, Houston Heights (East, West, and South), Woodland Heights or Old Sixth Ward.

At times, certain types of 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 may include:

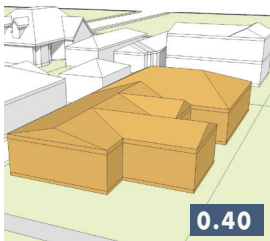
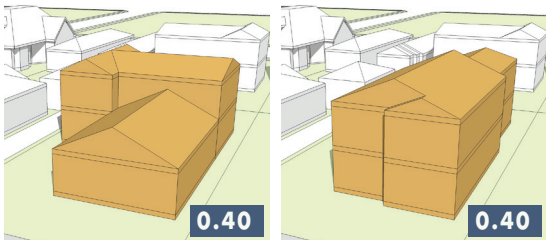
- Accessory structures (including garages)
- Attic space
- Roofed porches

### Intent

The concept is that a structure may be more compatible when it is in proportion to its lot size.

### 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 be used to provide an incentive for front porches or detached garages and accessory structures (by discounting them)



*When the FAR is set at a level that is less than what otherwise could be constructed within setback, height and building coverage limits, then there is the opportunity for variation in building form. That is, different design solutions with different massing arrangements can occur. All three of the structures illustrated above have a floor area ratio of 0.40.*



## Building Height Limits

### Definition

A height limit sets the maximum vertical dimension of a wall, roof ridge or other building feature. This measurement can be taken from a pre-determined point on the parcel to ensure consistency throughout the district. For example, this measurement may be taken from the lowest point on the parcel, or from the mid-point between the lowest and highest point of the ground. Building height is limited in the deed restrictions of a number of the historic districts: Woodland Heights, Norhill, Houston Heights (East, West, and South), and Old Sixth Ward.

Three types of height limits are often used when considering compatibility:

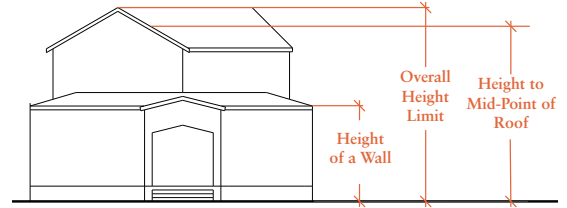
- Overall Height Limit - This is the maximum height to the topmost point of a structure (although some appurtenances may be excluded, such as a tower or decorative railing).
- Height to the Mid-Point of a Roof - Historically, this was often set to assure access by fire truck ladders, but has become a standard way of measuring height in some communities.
- 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 covenants use a variation of this concept.)

### Intent

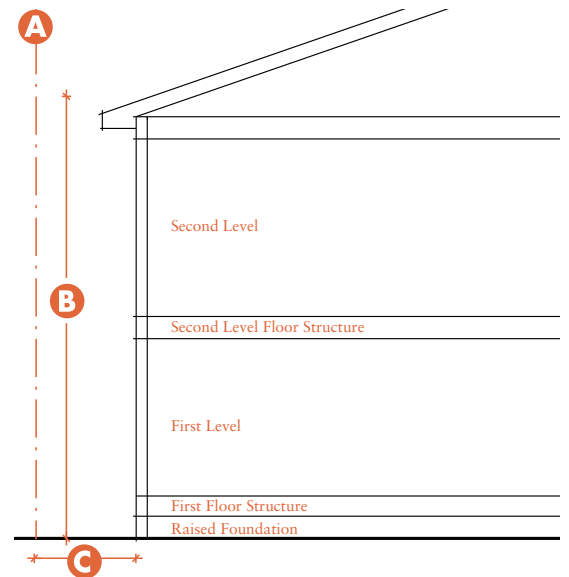
The intent of height measurement is to provide a consistent measure for calculating building height, especially where keeping heights within a range that is compatible with historic context is important.

### Advantages of Building Height Limits

- Helps ensure that structures do not *loom* over their neighbors
- Relatively easy to understand and calculate
- Can be used to provide an incentive for 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).



Overall building height standards set the maximum height a building may reach. This measurement can be taken from a pre-determined point on the parcel to ensure consistency throughout the district. Other limits may be set for the height of a wall at the minimum setback line and sometimes a limit to the mid-point of a sloping roof is used.

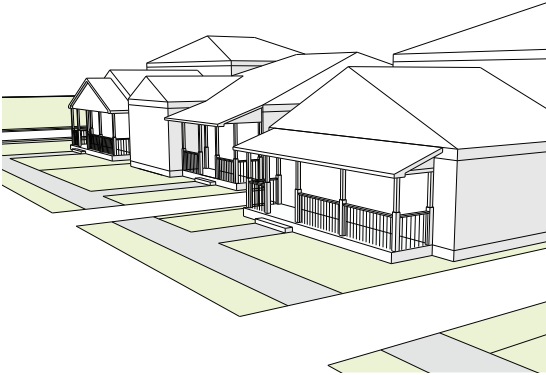


- A - Property Line**
- B - Maximum wall height at minimum setback**
- C - Minimum side yard setback distance**

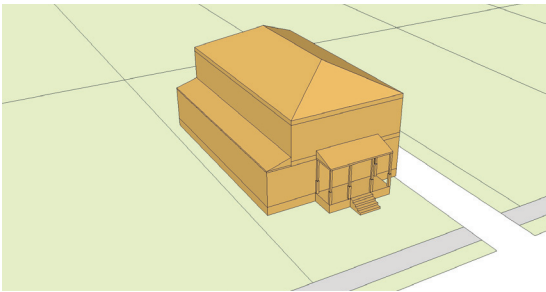
One type of wall height standard allows the height to increase as the distance from the property line increases.



## One-Story Element



Requiring a one-story element on the front of a residence may reduce the perceived mass of the building and match the traditional scale of the area.



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

### Definition

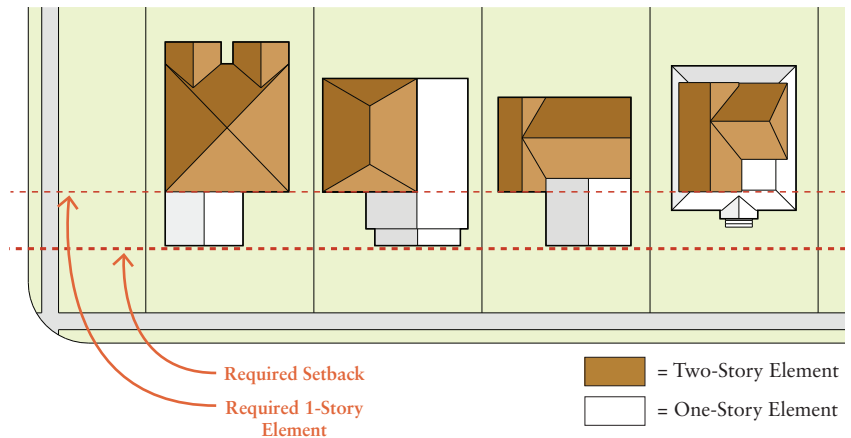
A one-story element (such as a porch or bedroom wing) can be encouraged to be located along a building front or side wall in order to help reduce the apparent mass of a structure. As an alternative to requiring a one-story element, an incentive can also be included in a FAR limit or building envelope standard to encourage one-story elements. Currently none of the historic districts have an explicit one-story element requirement, but the deed restrictions in the following districts require front porches: Norhill, Houston Heights (East, West, and South) and Old Sixth Ward.

### Intent

In many parts of the historic districts, buildings have one-story elements on the street facing façade. Using a tool that encourages, or requires, having a one-story element could protect this traditional pattern while still allowing for taller heights in other parts of a building.

### 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



Often a "1-Story Frontage Area" exists. Maintaining this scale for the front of a new building can help to maintain this characteristic of the area.



# POTENTIAL DESIGN TOOLS

## BUILDING LEVEL TOOLS

### Wall Offsets

#### Definition

Limiting the extent to which a tall wall can *loom* over neighbors can help to minimize visual impacts of larger buildings. Wall length and height standards may be combined to help sculpt building forms and reduce perceived mass. A wall length standard sets a maximum length, after which an offset must occur. A wall height 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.

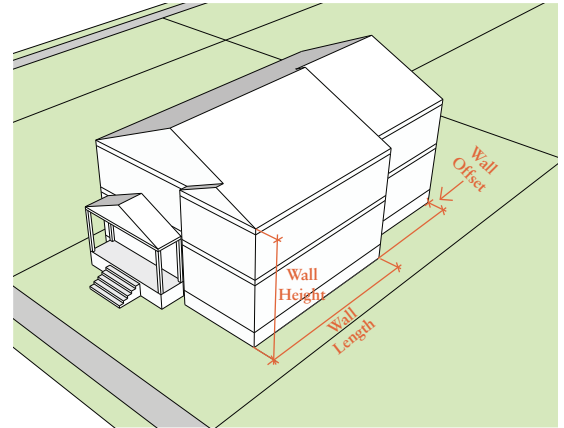
Wall height standards are often tied to minimum setbacks to help ensure that taller building elements are located away from the edges of a lot. Wall height offset standards can shape the building form in a way that is similar to a building envelope tool.

#### Intent

The intent of wall height and length offset standards is to reduce the perceived mass of a building and to reflect the scale of smaller building forms that may be a part of the context. By setting the appropriate wall height before a step back in height must occur and determining the maximum wall length before an offset must occur, a larger structure may be *sculpted* to fit within the context of smaller traditional buildings.

#### Advantages of Wall Offsets

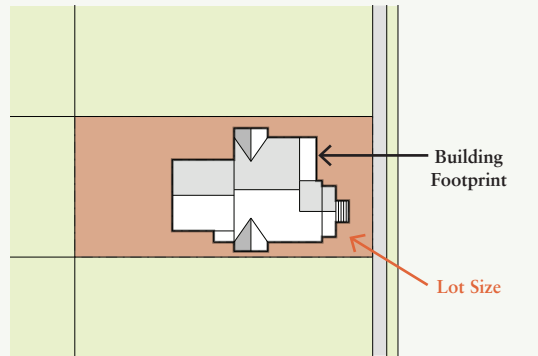
- Helps ensure that a structure does not *loom* over its neighbor
- Reduces the perceived mass and scale of a new building
- Encourages dividing a building mass into smaller modules



A sidewall offset tool can encourage a building form that appears similar in massing to neighboring properties. This can impact the sense of “looming” into a neighboring side yard.



## CALCULATING BUILDING COVERAGE



Building Footprint Size = 2,250 sqft.

Lot Size = 5,000 sqft.

Building Coverage =  $2,250 / 5,000 = 0.45$

**Building Coverage = 45%**

## Lot Coverage

### Definition

Lot coverage standards establish the maximum percentage of a lot surface that may be covered by structures. This is calculated by dividing the first floor area 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%. Limits on lot coverage are utilized in the deed restrictions of the Norhill Historic District.

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

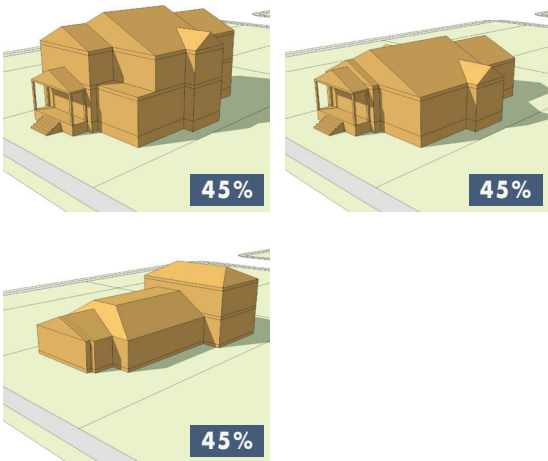
- Roof overhangs
- Accessory structures
- Roofed front porches
- Any deck or patio areas that are not roofed
- Gazebos that are not enclosed on more than two sides

### Intent

Lot coverage is intended to assure a minimum amount of open space on a parcel and to encourage retaining yard area.

### 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 for front porches or detached garages and accessory structures by discounting them



*Building coverage limits the maximum area of the footprint of a building. This defines the amount of open space on a parcel. The three examples above illustrate the same building coverage percentage in three different massing renditions.*





# POTENTIAL DESIGN TOOLS

## SITE LEVEL TOOLS

### Minimum Building Setback

#### Definition

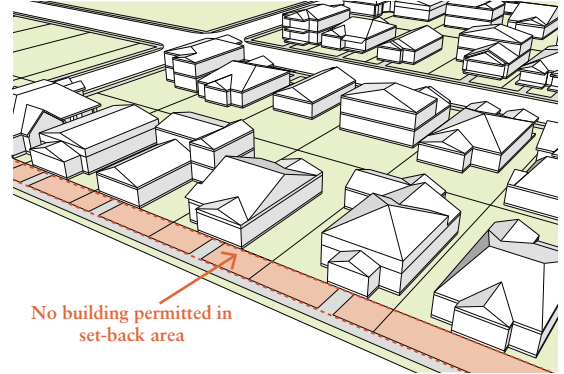
A building setback standard limits how close a building may be placed to the front, sides or rear of a lot. The setback can be calculated in three ways; 1) there can be a set number for the distance from the property line, 2) an *average* dimension for the front setback that is calculated from the surrounding context, 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 the deed restrictions in the following historic districts: Norhill, Houston Heights (East, West, and South), Old Sixth Ward and Woodland Heights.

#### Intent

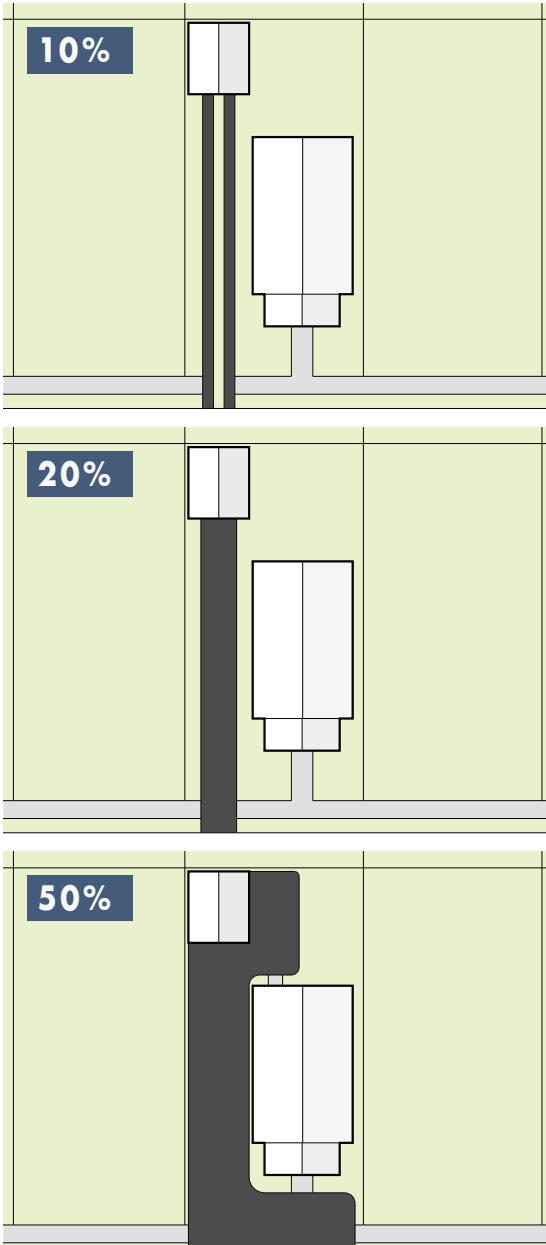
A building setback is intended to match the traditional alignment of residences in a neighborhood. By determining how far a structure must be built from the front property line a consistent lawn area can be maintained along the block. This tool encourages a pedestrian friendly environment along the street edge and provides open space to the sides and rear of a lot.

#### Advantages of Building Setback

- Front setbacks help maintain a strip of front yards.
- Side and rear setback standards can protect privacy (especially when new construction involves a two-story building) by ensuring that buildings on adjoining lots are separated by a minimum distance.
- Incentives can also be included in setback standards to 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).



*Front building setback requirements create a consistent open space along a block. This provides open space for a pedestrian friendly street edge.*



■ = 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 the parking conditions on a lot.

## Impervious Surface Limits

### Definition

A maximum impervious surface standard limits the amount of non-porous material, paving, and surface treatment 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 on neighboring properties.

### Intent

The intent of a maximum impervious surface limit is to mitigate storm water runoff of properties.

### Advantages of Impervious Surface Limits

- Mitigates water runoff
- Encourages a pedestrian-friendly environment



# POTENTIAL DESIGN TOOLS

# SITE LEVEL TOOLS

## Parking Design Standards

### Definition

Parking design standards address the location, size and design of on-site vehicular use areas. 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.

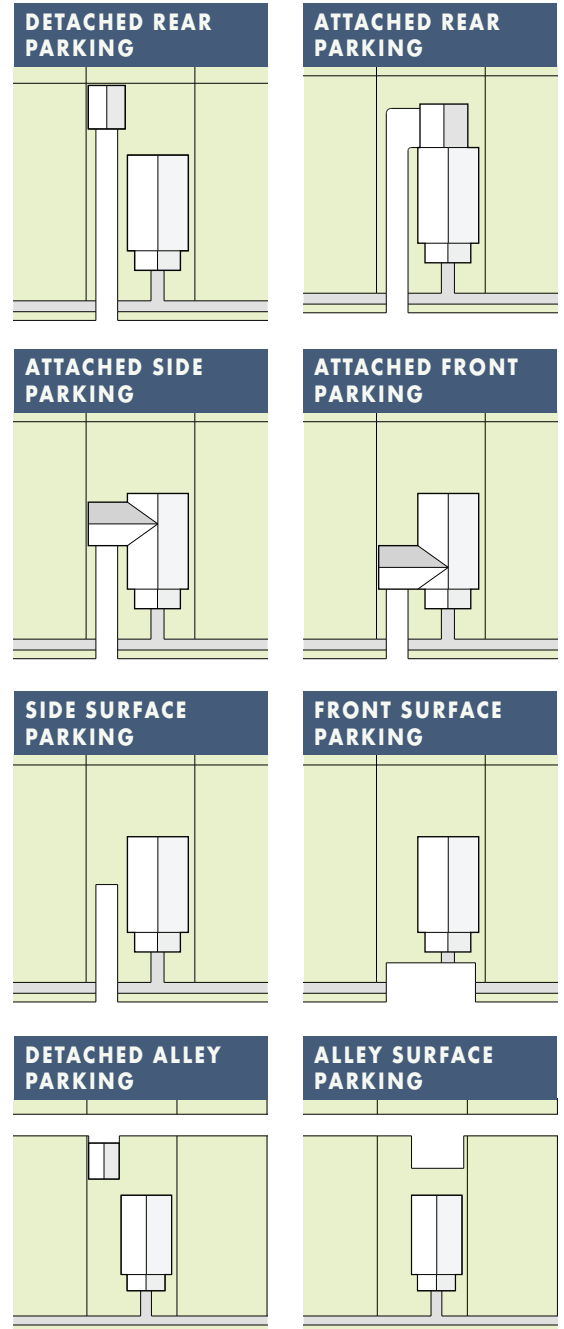
Parking design standards can limit the amount of paving surface allowed in the front yard. Standards can also limit the width and number of curb cuts and the location of a garage.

### Intent

Parking design standards are intended to minimize the visual impact of vehicles and maintain traditional parking patterns.

### Advantages of Parking Design Standards

- Ensures street presence is consistent with traditional character
- Provides safe and orderly pedestrian & 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.



*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.*

