

# FLOOR AREA RATIO ANALYSIS

*Steph McDougal, October 2017*

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The City of Houston is developing historic preservation design guidelines for the three Houston Heights Historic Districts: Houston Heights Historic District East, Houston Heights Historic District West, and Houston Heights Historic District South. The design guidelines document, in its current draft form (released August 2017) includes measurable standards for building size, including Lot Coverage and Floor Area Ratio. This paper explains how Lot Coverage and Floor Area Ratio are calculated, why these standards are proposed as a way to regulate building size, and how the proposed standards were developed.

## WHY IS BUILDING SIZE REGULATED?

The City of Houston's historic preservation ordinance requires new buildings and additions to existing buildings to be **compatible in size, scale, and massing** with the historic ("contributing") buildings within the context area. That means that the proposed project should fit in visually with the historic buildings on its blockface and the opposing blockface (the "context area").

Historic neighborhoods and streetscapes have a visual *rhythm* that is created when buildings have similar setbacks and when the size of buildings – including height, width, and depth – are similar. The size of buildings is a major factor in maintaining the rhythm of the streetscape; when the size and scale of neighboring buildings are similar, no single building towers over the others, and the streetscape is visually harmonious. New projects must be compatible with existing buildings in size, scale, and massing to meet the requirements of the historic preservation ordinance.

## WHAT ARE "LOT COVERAGE" AND "FLOOR AREA RATIO"?

**Lot coverage** is a measure of the size of a building's footprint in relation to the size of the lot on which the building is located. For example, imagine a two-story building that measures 2,000 square feet (sf) in total area (1,000 sf on each floor) and is located on a 5,000 sf lot. With a 1,000 sf footprint, that building covers 20% of the lot. Its Lot Coverage would be expressed as 20% or .20.

**Floor Area Ratio** is a measure of the total area of a building in relation to the size of the lot on which the building is located. For example, the same 2,000 sf two-story building on a 5,000 sf lot would have a Floor Area Ratio (FAR) of .40.

## HOW ARE THE LOT COVERAGE AND FLOOR AREA RATIO CALCULATED?

To put it most simply, Lot Coverage and Floor Area Ratio are measured by dividing the first-floor area of buildings (for Lot Coverage) or the total area of buildings (for Floor Area Ratio) by the area of the lot on which the buildings are located. Area, for these purposes, is measured in square feet.

As defined in the design guidelines for the Houston Heights Historic Districts, however, the calculations both Lot Coverage and Floor Area Ratio include some types or parts of buildings while excluding others; see page 5-5 and 5-15 in the August 2017 draft design guidelines for more information. The maximum allowable Lot Coverage and Floor Area Ratio for lots of various sizes are also on those pages.

## HOW WERE THE MAXIMUM LOT COVERAGES AND FLOOR AREA RATIOS DETERMINED?

In Summer 2016, design guidelines consultants Winter and Company analyzed Geographic Information Systems (GIS) data for every property in the Houston Heights Historic Districts to determine the range of Lot Coverage and Floor Area Ratio for existing contributing houses in those historic districts. They used that data to create graphic models of representative contributing houses in each of the three Houston Heights Historic Districts – East, West, and South. They also created graphic models of potential additions to contributing houses and new houses, showing a wide range of different sizes and shapes of these potential additions and new buildings. The models were created using real dimensional data, so the height, width, and depth measurements for each scenario were known to the consultants.

Winter and Company combined both types of models to show a representative partial “block” of contributing houses into which they inserted the various potential projects. Different views of each scenario – street level, bird’s-eye, and plan (overhead) views – showed the potential addition or new building on the block of contributing houses from different perspectives. Those images were presented in a Compatible Design Survey, customized for each district and mailed to every property owner in the Houston Heights Historic Districts. In the survey, property owners were asked to rate how compatible the examples of potential additions and new buildings were with their historic district, based on lot coverage, size, height, and form/shape. The survey also asked property owners to rate the importance of regulating various aspects of building size, including Floor Area Ratio (buildings size in relation to lot size), lot coverage, side wall length, wall height, and the presence of a one-story building element, such as a front porch.

The owners of approximately 25% of properties in each of the three Houston Heights Historic Districts returned responses to the survey, either through the mail or via an online version. The results were presented in the project’s Strategy Paper in March 2017, and included clear direction regarding the point at which additions and new buildings were considered too large to be compatible. The consultants took this data, calculated the Lot Coverage and Floor Area Ratio preferences expressed by property owners, increased the resulting Lot Coverage and Floor Area Ratio standards to allow slightly larger buildings, and then adjusted the standards for lots of different sizes. The resulting standards are presented in the draft design guidelines of August 2017 for the Houston Heights Historic Districts.

## HOW WILL THESE STANDARDS AFFECT THE SIZE OF BUILDINGS THAT CAN BE APPROVED?

For several years, property owners in the Houston Heights Historic Districts and their design professionals have asked the City of Houston for a “formula” or some sort of quantitative parameters to make the design review process for additions and new construction easier and more predictable.

The historic preservation ordinance requires that additions and new buildings must be compatible with existing contributing buildings in the *context area* (the blockface on which the project is located and the opposing blockface) in terms of size, scale, and massing. These concepts are often confusing and both applicants and HAHC members sometimes find them to be hard to interpret when evaluating Certificates of Appropriateness applications. In response, when the historic preservation ordinance was amended in 2015, City Council directed the Planning Department to include language that required the City to create design guidelines for the three Houston Heights Historic Districts.

During the design guidelines draft review process and public comment periods, several property owners asked how these standards would have affected Certificates of Appropriateness and whether the outcomes would have been the same or different.

To see if or how the proposed measurable standards for Lot Coverage and Floor Area Ratio might affect HAHC decisions, we looked at the Certificates of Appropriateness (COA) applications for additions and new construction in the three Houston Heights Historic Districts from December 2015, when the latest ordinance amendments went into effect, through September 2017. This included 46 COA for additions and 8 COA for new buildings. We calculated Lot Coverage and Floor Area Ratio using the information provided on the COA (supplemented, in some cases, by information from the Harris County Appraisal District).

For additions, we found that:

- 93% of these COA were approved by HAHC and 7% were denied.
- 60% would have had the same result when evaluated against the proposed Lot Coverage and Floor Area Ratio (FAR) standards; this includes 24 approvals and three denials.
- None of the 19 COA that were approved by HAHC would have been denied solely due to Lot Coverage; 42% of them would be denied solely because of FAR and the remaining 58% would be denied on the basis of both LC and FAR.
- Two COA missed the FAR standard by less than 40 square feet (sf), while seven were too large by 700-1000 sf and six were oversized by more than 1000 sf.
- Almost all of those which would be denied due to FAR had attached garages ranging in size up to 900 sf. In some cases, had the garages been detached, the numbers would have worked, but in most cases the buildings were simply too large (or the existing building was already over the FAR limit due to previous additions).

For new construction, out of eight COA, five (62.5%) would have the same result when the Lot Coverage and FAR standards are applied. One of those COA was denied by HAHC because of its design and would have been approved if FAR and Lot Coverage were the only factors. The three that were approved by HAHC and would have been denied were oversized by 391 sf; 1,054 sf; and 1,680 sf. The three that

would have been denied by DG all had attached garages; the garages alone measured 630 sf, 812 sf and 900 sf.

Homes in the 1,000-1,499 sf range make up most of the existing contributing buildings in the three Houston Heights Historic Districts. The proposed FAR standards would allow 2,904 sf on a typical 6,600 sf lot, effectively allowing property owners to double the size of these homes. However, almost all of the COA that would have been denied based on FAR were over the 2,904 sf limit by 700 sf or more, meaning that they were at least 3,600 sf or greater in size – sometimes up to 4,500 sf. In other words, the projects that would have been denied, had the design guidelines been in place, are 3-4 times larger than existing contributing buildings. Three or four times larger is clearly not “compatible in size, scale, or massing.”

Because many people are building additions that fall well within the measurable standards as written, and that those that don't are *clearly incompatible* with the scale of the contributing buildings in the context areas, we feel that the FAR and Lot Coverage standards proposed in the Houston Heights Historic Districts Design Guidelines are appropriate for those districts. (Design guidelines for other historic districts will be developed based on their own specific data and community input.)

The HAHC did not previously have all of this data to consider when considering applications for COA, so if they were presented with the same COA applications after the design guidelines are approved, their decisions would be different for those applications that do not meet the FAR standards. However, because applicants and their design professionals would also be able to use the design guidelines during the project planning process, we are confident that approval rates for COA would remain high.