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## MUNICIPAL GREEN BUILDING ORDINANCES IN THE U.S.

Marne Sussman  
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### Executive Summary

*Numerous municipalities in the U.S. have created green building ordinances over the past few years. These ordinances are cataloged and examined in the municipal green building ordinance spreadsheets on the website of the Center for Climate Change Law. To better understand the decisions that need to be made in developing a model green building ordinance, this paper discusses the different choices made by the municipalities that developed the ordinances identified in the spreadsheets and notes areas of consensus among municipalities.*

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### INTRODUCTION

The municipal green building ordinance spreadsheets cover 137 ordinances containing standards for public buildings and 61 ordinances containing standards for private construction.

The elements of each green building ordinance are: the type of construction (new construction, subsequent construction, or existing buildings), the type of building (commercial, mixed-use, or residential), size threshold (in square feet), financial threshold (based on project cost), the standard required (LEED, Energy Star, Green Globes, GreenPoint Rated, or another standard and the level of the standard that is required), the version of the standard (LEED 2.2, LEED 3.0, or the most current version), additional requirements (such as energy reduction), special features (such as fees), exemptions, compliance process, and enforcement.

Ordinances that apply to public construction and ordinances that apply to private construction contain similar elements, but as the standards and requirements tend to be different, the two types of ordinances are discussed below in separate sections.

## **DISCUSSION**

### **Ordinances that apply to public buildings**

Ordinances that are classified as “public” either specifically state that they apply only to municipal buildings or apply to both public and private construction in regulating all commercial construction. Only 12 of the 137 ordinances are of the latter type and are included in both spreadsheets. The overwhelming consensus is to regulate public and private buildings through separate ordinances with higher standards for municipal construction than for private construction. The 12 municipalities with a general ordinance hold private construction to the same standard as municipal construction and thus tend to have a higher standard for private construction than do municipalities with separate ordinances.

### Type of construction

All of the public ordinances cover new construction and 40% of them only cover new construction. Sixty percent of the ordinances also cover subsequent construction and use different terms to describe such construction including renovations, remodels, additions, or modifications. By far the most common choice made by the municipalities is to have the ordinance cover new construction and renovations. Only 6 of the ordinances cover existing buildings.<sup>1</sup>

In just under half of the ordinances that cover new construction and renovations, the renovation is specified as a major renovation while in the other half the ordinance applies to all renovations. “Major renovation” is defined in only 30% of the ordinances that use

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<sup>1</sup> Bloomington, IN, Code §2.29; Cranford, NJ, Code §106; Los Angeles, CA, Administrative Code Division 7, Chapter 3, Article 5; Miami Beach, FL, Municipal Code Chapter 100; Portland, OR, Resolution; Richmond, VA, Resolution 2008-R152-2009-14.

the term. The consensus among the ordinances is to define major renovation as a renovation that alters or adds more than 50% of the gross floor area of a building.<sup>2</sup>

### Type of buildings

A related decision is the type of buildings the ordinance will apply to. About half of the public ordinances simply describe the buildings as municipal, public, town, or city, buildings, projects, or facilities. The other half are more specific and include city owned buildings, city funded buildings, city sponsored or subsidized projects, or projects on city land. Some ordinances include a combination of the descriptions above to explain which buildings are included.<sup>3</sup>

A handful of the ordinances specifically limit applicability to occupied city buildings to avoid applying the ordinance to buildings such as garages and storage facilities.<sup>4</sup> Other ordinances exempt unoccupied city buildings from coverage in a separate exemption section.<sup>5</sup>

### Size or financial thresholds

Some municipalities only require buildings to meet a green building standard if they are above certain size or financial thresholds. Seventy-four of the 137 ordinances have a minimum square footage requirement, 6 have a project cost requirement, 6 have both size and financial thresholds, and 4 require the building to meet either a size or financial threshold. A handful of the ordinances create multiple size categories with escalating standards for larger buildings.<sup>6</sup>

Among the ordinances with size thresholds, the square footage ranges from 500 to 50,000 with 5,000 being the overwhelming consensus. For the few ordinances with financial

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<sup>2</sup> *E.g.* Annapolis, MD, City Code §17.14.

<sup>3</sup> *E.g.* Berkeley, CA, Resolution 62284.

<sup>4</sup> *E.g.* Asheville, NC, Resolution 07-91; Bloomington, IN, Code §2.29; Chandler, AZ, Resolution 4199.

<sup>5</sup> *E.g.* York, ME, Zoning Ordinance Article Nine.

<sup>6</sup> *E.g.* Asheville, NC, Resolution 07-91; San Rafael, CA, Code Title 14, Division IV, §14.16.365 and Standards of Compliance.

thresholds, the amounts vary from \$200,000 to \$5 million, with \$1 million being slightly more common.

In short, most ordinances have a size threshold of 5,000 square feet, but this is not a clear consensus.

### Standard

The overwhelming consensus is to use LEED as the applicable green building standard, with LEED silver being the standard most often required. Thirty-eight municipalities require LEED certified, 81 require LEED silver, 6 require LEED gold, 1 requires LEED platinum, and 6 require a certain number of points on a LEED checklist.

A few of the ordinances require escalating levels of LEED as the building size increases.<sup>7</sup> A handful also have phase-in programs where the required LEED level is raised over time.<sup>8</sup> Sometimes multiple rating systems are used in conjunction with one another. In a few ordinances a building can either meet the LEED standard or another standard.<sup>9</sup> In another ordinance buildings must achieve both LEED silver certification and Energy Star status.<sup>10</sup>

A related choice is whether to require certification by LEED or only to require enough points that certification would be possible. Almost 70% of the ordinances require third party certification even though this presents legal problems that will be explored in future Center for Climate Change Law papers. Of the municipalities that do not require certification, some specify this outright, while others state the standard in an unclear way by using terms such as “LEED silver rating” or “LEED silver level”.

### Version of standard utilized

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<sup>7</sup> *E.g.* Calabasas, CA, City Code Title 17, Article III, §17.34; Rohnert Park, CA, Code §14.50 and Standards of Compliance.

<sup>8</sup> *E.g.* Richmond, VA, Resolution 2008-R152-2009-14.

<sup>9</sup> *E.g.* Alameda, CA, Code Chapter XII, Article VI, §13-19; Chamblee, GA, Municipal Code §93-1(d).

<sup>10</sup> Denver, CO, Executive Order 123, Chapter 2.

The vast majority of the ordinances do not specify which version of the green building standard is meant to apply leaving it unclear whether it is the version in existence when the ordinance was passed, or whether buildings will be held to the most recent version of the standard. Of the approximately 50 ordinances which do specify a particular version of the standard, over half state that the most recent version applies even though this creates legal problems. The remainder of the ordinances which specify a version of LEED link the standard with specific versions, such as LEED 2.2 or LEED 2.0.

### Additional requirements

A handful of municipalities have requirements in addition to meeting the LEED standard to address problems specific to their area. The most common additional requirement is to require the building to reduce energy usage as compared to state or city code requirements or LEED baseline requirements.<sup>11</sup>

A handful of municipalities require specific actions to be taken or benchmarks to be met. For example, San Francisco requires the building to meet requirements relating to water and energy conservation, fluorescent lamp recycling, indoor air quality, storage of recyclables, and construction debris management.<sup>12</sup> A few ordinances require the building to achieve specific LEED credits or a certain number of points in different LEED sections in addition to meeting a specified LEED standard.<sup>13</sup>

### Special features

A few ordinances require special fees to cover the municipality's cost of green building review. These fees are included only in ordinances that cover all commercial and non-residential construction and apply to both public and private buildings; thus they are discussed in the section below regarding special features of ordinances that apply to private buildings.

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<sup>11</sup> *E.g.* Costa Mesa, CA, Council Policy 500-14; New York, NY, Charter §9-224.1; Philadelphia, PA, Executive Order 1-07; Portland, OR, Resolution.

<sup>12</sup> San Francisco, CA, Environment Code Chapter 7.

<sup>13</sup> *E.g.* Dallas, TX, LEED Policy Update 2006; Greensburg, KS, Resolution; Pasadena, CA, Municipal Code §14.90.

## Exemptions

Over half of the ordinances include some exemption with the most common being an exemption for hardship or infeasibility. These exemptions are not defined financially but are based on multiple factors including: the availability of markets for materials to be recycled, the availability of green building materials and technologies, the compatibility of green building requirements with other government requirements and building standards, and the lack of available green building consulting support.<sup>14</sup>

Also common are exemptions for cost-based reasons such as if compliance would be an unreasonable burden, cost-prohibitive, not cost-effective, or cause an increase in construction cost by a certain percentage. Multiple ordinances exempt certain types of facilities such as unoccupied buildings or garages, or certain types of construction such as seismic retrofits or handicap upgrades. Historic structures are also a common exemption. Most often the ordinances include a combination of the exemptions listed above.<sup>15</sup>

## Compliance process

Only 46, or 33%, of the ordinances provide any details on the process of complying with the green building standards. Thirty-two of these are ordinances aimed only at municipal construction. The common elements of these ordinances are to require: a LEED Accredited Professional to be a member of the design and construction team, a LEED checklist demonstrating the points that will be attained, and identification of the person in charge of the program or inspections. A few ordinances also withhold a building permit until there is verification by municipal officials that the project has been designed to meet the standard.

## Enforcement

The overwhelming majority of the public ordinances do not discuss enforcement mechanisms. The ordinances with enforcement mechanisms have them under one of two circumstances: either the ordinance is one that applies to all commercial buildings and

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<sup>14</sup> *E.g.* Albany, CA, Land Development Code §20.68 and Standards of Compliance, Davis, CA, Municipal Code §8.20.

<sup>15</sup> *E.g.* Portland, ME, City Code Chapter 6, Article VII.

thus applies to both public and private construction, or the ordinance is codified in the municipal code with separate requirements for private and public construction but has an enforcement provision that applies to both.<sup>16</sup> In either situation the enforcement provision is presumably in place to guarantee that private buildings comply with the standards.

There are 3 public ordinances that do have mechanisms to enforce their requirements. These require the municipality to file reports with the city council on the municipality's compliance with the ordinance.<sup>17</sup> As these reports are presumably discussed in city council meetings, they are likely publicly available within the city council minutes of the municipality.

### **Ordinances that apply to private buildings**

The spreadsheet includes 61 ordinances that require private construction to meet green building standards. Often these private ordinances cover both residential and commercial construction but provide different standards and requirements based on the type of building. The spreadsheet includes 112 rows because some of the ordinances with different requirements for different types of buildings are broken down into multiple listings.

#### Type of construction

As with the public ordinances, all of the private ordinances cover new construction. Twenty-seven, or 42%, only cover new construction, while the remainder also include subsequent construction using different terms such as renovations, remodels, additions, or major modifications.<sup>18</sup> None of the ordinances that cover private construction require existing buildings to meet green building standards.

The consensus of the municipalities is to include new construction and some form of subsequent construction.

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<sup>16</sup> *E.g.* Brisbane, CA, Municipal Code §15.80; Conyers, GA, Municipal Code Title 8, Article II, Chapter M; Taos, NM, Building Code §15.04.040.

<sup>17</sup> Eugene, OR, Resolution 4884; Fort Collins, CO, Resolution 2006-096 ; Miami Beach, FL, Municipal Code Chapter 100.

<sup>18</sup> *E.g.* Santa Cruz, CA, Municipal Code, §24.15.

### Type of buildings

The consensus of the municipalities is to apply green building standards to both commercial/non-residential construction and residential construction. Of the 61 private ordinances, 37 cover both types of construction, 19 cover only residential construction, and 5 cover only commercial/non-residential construction.

Of the ordinances that cover both types of construction, over 60% separate commercial and residential construction and require different standards of each, while the rest have the same standard for both. The ordinances with the same standard for both commercial and residential construction generally only cover multi-family construction or mixed-use development and do not include single family homes.<sup>19</sup>

Some ordinances specify that they only apply to single family or multi-family housing, or distinguish between single family and multi-family residential construction, requiring different standards for each.<sup>20</sup>

### Size or financial thresholds

The vast majority of municipalities do not set a financial threshold for application of the green building requirements to private construction. This means the ordinance applies broadly and requires more buildings to comply with the standard than if a financial threshold was in place. Only 4 of the private ordinances have a financial threshold and 3 of those only apply to renovations.<sup>21</sup>

The size thresholds for the private ordinances are more complex and contain more variation than the public ordinances. The threshold often depends on the type of construction. There is no clear consensus for most of the standards; however there is a

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<sup>19</sup> *E.g.* Babylon, NY, City Code Chapter 89, Article VIII; Chamblee, GA, Municipal Code §93-1(d); Gaithersburg, MD, Code Chapter 5, Article I, §5-3, Subsection 3110.

<sup>20</sup> Davis, CA, Municipal Code §8.20.

<sup>21</sup> Morgan Hill, CA, Code §15.65.

trend toward tiering the requirements so that the standards become more stringent as the size of the building increases.

*Standards covering only commercial construction*

Seven of the 25 standards covering only commercial construction have no size requirement. Eleven have specific size thresholds ranging from 4,000 to 50,000 square feet, with 5,000 square feet being the most common. Eight of the 25 have tiered levels with 5,000 square feet as the most common starting tier. Thus 5,000 square feet is the most common size threshold in both ordinances with tiered levels and ordinances with a particular size threshold. Most of the ordinances with tiers only have two levels such as 5,000 to 10,000 square feet and 10,000 square feet and above.<sup>22</sup> Three of the ordinances have specific, separate size requirements for remodels and additions.

*Standards covering all residential construction*

Fifteen of the 24 standards covering all residential construction have no size threshold while 2 have 500 square feet as a threshold, 1 has 1,500 square feet as a threshold, and 6 are tiered. One of the tiered ordinances also has separate tiers for additions.

*Standards covering single family homes and small scale multi-family homes*

There are eight ordinances that cover single family homes and multi-family homes that are 4 to 5 units or less and 2 to 3 stories or less. None of these eight ordinances have a size threshold.

*Standards covering only single family homes*

There is no consensus among these 6 standards, although a majority (4) have no size requirements. One ordinance has a size threshold of 3,250 square feet and

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<sup>22</sup> Healdsburg, CA, Code §15.16; Healdsburg, CA, Resolution 6-2009.

another has tiered size thresholds. The tiered ordinance also has separate tiers for additions.<sup>23</sup>

*Standards covering commercial and multi-family residential construction*

All 6 of these standards have size requirements but there is no consensus as to the square footage required. They range from 4,000 square feet to 50,000 square feet and one is tiered.

*Standards covering large scale multi-family residential construction*

There are 5 ordinances that cover multi-family residential construction of more than 4 to 5 units. Four of these ordinances have no size threshold while one has tiers.

*Standards covering commercial, mixed-use, and residential construction*

Four of the 6 ordinances in this category have size thresholds ranging from 7,500 to 50,000 square feet, while the other two do not have any size threshold requirement.

*Standards covering commercial and mixed-use construction*

Two of these ordinances have size thresholds of 5,000 square feet and 7,500 square feet respectively, while 1 does not have a size threshold.

*Standards covering residential and mixed-use construction*

Two of these ordinances have size thresholds of 500 square feet and 50,000 square feet respectively. The other ordinance has no size threshold.

*Standards covering only mixed-use construction*

The one ordinance in this category has no size threshold.

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<sup>23</sup> Davis, CA, Municipal Code §8.20.

Although there is no clear consensus for the size standards, there are some common factors in the ordinances. Combined, 80% of the standards covering commercial buildings have some kind of size requirement, whether it is a set amount of square feet or a tiered structure. Conversely, less than 30% of the residential standards have size requirements. This may be because a good portion of these residential standards are residential only standards where the required green building requirement is low. Separate tiers for additions or a financial threshold for renovations is also common among the ordinances.

### Standard

Most of the private ordinances have separate standards for commercial and residential construction.

#### *Commercial*

For commercial construction, LEED is the standard used in all of the ordinances. Thirteen of the ordinances require LEED certified and 8 require silver, while gold is only required in 1. Eight of the ordinances are tiered by size and require either LEED certified or LEED silver based on size. Nine of the ordinances require a certain number of points on a LEED checklist, or have tiers, with points ranging from 5 to 28 with 20 points being the most common.<sup>24</sup>

Overall, the vast majority of the ordinances use LEED certified or silver or both as the required standards for commercial construction.

#### *Residential*

The standards used in the private ordinances for residential construction are more varied. There is a divergence between ordinances that only regulate residential construction and ordinances that regulate some residential construction and some commercial construction.

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<sup>24</sup> For more information on the USGBC LEED rating system see <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220#v2.2>.

For ordinances that only regulate residential construction, the most common standards are Energy Star with 16 ordinances, and GreenPoint Rated with 20 ordinances. Most of the Energy Star ordinances require a certain Home Energy Rating System, or HERS score, the most common being 84<sup>25</sup>. The ordinances using GreenPoint Rated, a green building rating system developed in California and similar to LEED, mostly require 50 points<sup>26</sup>. Some of the GreenPoint Rated standards have tiered point requirements based on the size of the building and many have lower point requirements for remodels and additions.<sup>27</sup> Four of the ordinances require LEED certified as an alternative to GreenPoint Rated.

For the ten ordinances that cover some types of residential construction and some commercial construction, LEED certified is the most common standard required. These ordinances tend to cover commercial construction and multi-family residential construction but not single family homes.

There are a few ordinances that use other green building standards such as Green Globes, Earth Craft, Earth Advantage, and other local programs.<sup>28</sup>

Over half of the ordinances require third party certification rather than mere certifiability, even though this presents legal problems.

### Version

Almost 60% of the 61 ordinances do not indicate which version of the standard applies. Of the 22 ordinances that do specify a version, over half use the most recent version and the rest specify a particular version of the standard such as LEED 2.2 or GreenPoint Rated 2007.

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<sup>25</sup> For more information on the Energy Star program and the HERS rating system see [http://www.energystar.gov/index.cfm?c=bldrs\\_lenders\\_raters.nh\\_HERS](http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_HERS).

<sup>26</sup> For more information on the Build It Green GreenPoint Rated program see <http://www.builditgreen.org/guidelines--checklists/>.

<sup>27</sup> *E.g.* Carmel, CA, Municipal Code §15.54 and Standards of Compliance; Davis, CA, Code §8.20.

<sup>28</sup> *E.g.* West Hollywood, CA, Municipal Code §19.20.060.

### Additional requirements

As with the public ordinances, only a handful of municipalities choose to impose requirements beyond the required green building standard. As with the public ordinances, the most common additional requirement is energy use reduction, which is required by 10 of the 61 municipalities.<sup>29</sup>

Three municipalities require the building to achieve specific LEED credits to address particular environmental problems such as water usage.<sup>30</sup> Two municipalities have specific requirements that buildings covered by the ordinance must meet.<sup>31</sup>

### Special features

Eight of the ordinances require applicants to pay a green building fee. Four ordinances charge fees based on square footage, ranging from \$0.002 to \$1 per square foot.<sup>32</sup> Two have fees set by the city council and one has a fee of \$200-\$300 based on the type of residential construction.<sup>33</sup> The Greenburgh fee is refunded if the building receives LEED certification from the USGBC. Portland requires a deposit of \$10,000 which is returned if the developer makes a good faith effort to comply with the green building guidelines.<sup>34</sup> Thus both the Portland and Greenburgh fees act as enforcement mechanisms for the green building program. Taos, NM allows the applicant to pay a fee in lieu of complying with the ordinance.

Two ordinances reduce the number of LEED and GreenPoint Rated points that are required if the builder maintains an existing structure, and increase the number of points

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<sup>29</sup> *E.g.* Boulder, CO, Municipal Code §10-7.5; Islip, NY, Municipal Code Chapter 68, Article IV, §68-30.1; Riverhead, NY, Code Chapter 52, Article I, §52-21; San Rafael, CA, Code Title 14, Division IV, §14.16.365 and Standards of Compliance.

<sup>30</sup> Pasadena, CA, Municipal Code §14.90; San Francisco, CA, Building Code Chapter 13C; Taos, NM, Building Code §15.04.040.

<sup>31</sup> Windsor, CA, Municipal Code Title 7, Chapter 5; Santa Monica, CA, Code §8-108.

<sup>32</sup> Washington D.C., Bill B16-0515; Babylon, NY, City Code Chapter 89, Article VIII; Greenburgh, NY, Code §233; Huntington, NY, City Code §197-4.

<sup>33</sup> Calabasas, CA, City Code Title 17, Article III, §17.34; San Jose, CA, Code §17.84; Healdsburg, CA, Code §15.16; Healdsburg, CA, Resolution 61-2009.

<sup>34</sup> Portland, OR, Resolution 6262.

required if the builder demolishes the existing structure. These ordinances also reduce or increase the number of points required by a greater margin when the building at issue is a historic structure.<sup>35</sup>

Normal, IL makes its ordinance applicable only in the central business district.

### Exemptions

Over half of the ordinances include some exemption with the majority exempting buildings for hardship or infeasibility. Nine ordinances exempt historic structures, 6 exempt certain repairs such as seismic retrofits and handicap upgrades, and 2 exempt compliance if it would be impractical or unduly burdensome.

Only one of the ordinances that exempts projects for impracticality specifies what constitutes impracticality. Builders can apply for a waiver of the green building requirements based on a finding that unique physical characteristics of the property or project make compliance impracticable. Financial hardship of meeting LEED cannot be the sole basis for granting a waiver.<sup>36</sup> Two ordinances take cost into consideration in exempting buildings from compliance.

### Compliance process

The majority of the municipalities delineate a process in the ordinance for meeting the green building requirements. The process in most of the ordinances is similar and generally requires the applicant for a building permit to submit documentation, usually including a checklist or scorecard, showing the points they will achieve towards the standard. Most of the municipalities require the developer to demonstrate that the building will meet the required standard before a building permit is issued.<sup>37</sup>

### Enforcement

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<sup>35</sup> San Francisco, CA, Building Code Chapter 13C; Palo Alto, CA, Municipal Code §18.44 and Standards of Compliance.

<sup>36</sup> Gaithersburg, MD, Code Chapter 5, Article I, §5-3, Subsection 3110.

<sup>37</sup> *E.g.* Annapolis, MD, City Code §17.14.

Unlike the public ordinances, the majority of the private ordinances contain some kind of enforcement mechanism to ensure compliance. The vast majority of the municipalities refuse to hold a final inspection or issue a final certificate of use and occupancy until it is shown that the building achieved the required standard.<sup>38</sup> Some municipalities accept inspections as verification that the building has achieved the standard, while others require actual certification by the USGBC or other applicable authority. A few municipalities allow a temporary certificate of occupancy to be issued if the building is inspected and all documentation for certification has been submitted.<sup>39</sup>

In some of the municipalities that charge green building fees, the fees are refunded if the project receives certification.<sup>40</sup> Some municipalities set penalties for violations of the green building code in other sections of the code.<sup>41</sup>

## **CONCLUSION**

This memo describes the many elements of green building ordinances. Most of the ordinances cover both new and later construction and both commercial and residential construction. About half of the ordinances have some kind of size threshold. Most do not have a financial threshold. LEED, GreenPoint Rated, and Energy Star are the most common standards and often municipalities tie the standard to the most recent version of the rating system.

Very few ordinances have additional requirements or special features. Exemptions for hardship or infeasibility are common. The compliance process tends to require documentation of the points that will be achieved before a building permit is issued. Finally, enforcement is usually handled through withholding the final inspection or final certificate of occupancy and use until the green building standard is met.

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<sup>38</sup> *E.g.* Brisbane, CA, Municipal Code §15.80.

<sup>39</sup> *E.g.* Chamblee, GA, Municipal Code §93-1(d).

<sup>40</sup> *E.g.* Babylon, NY, City Code Chapter 89, Article VIII.

<sup>41</sup> *E.g.* Livermore, CA, Code §15.76.