

DESKTOP STUDY: ALBUQUERQUE ENERGY CONSERVATION CODE

1. THE POLICY

Albuquerque's Energy Conservation code was developed from the City's Green Ribbon Task Force which was set up by the Mayor as part of the "Albuquerque Green" campaign established in 2007. The code was originally intended to be implemented in April 2008 however this was extended to October 2008 in order to allow City leaders and industry advocates to resolve their differences surrounding the most contentious areas of the code, through potential code amendments, including lowering the lowering of certain standards and delaying the implementation of others.

Ultimately, consensus on code changes was not reached and in July 2008, fourteen stakeholder groups, led by the Air Conditioning, Heating and Refrigeration Institute filed suit against the city, seeking a preliminary injunction against the code's implementation. This was granted on October 3rd, blocking the enforcement of the two volumes of the code which had previously been adopted by the City Council. The City is currently challenging this preliminary ruling, prior to the full hearing taking place. While this is ongoing, the City is investigating routes to implement areas of the code not subject to the litigation, though no definite date has been set for the release of the uncontested areas of the code.

Code Requirements

The full code sets out requirements for commercial buildings, multi-family residential buildings and single-family dwellings. Additions, alterations, renovations, or repairs to an existing building or to building system, are required to conform to the provisions of this code as they relate to new construction but do not require the unaltered areas to comply.

The code is largely focused on influencing energy use at the design stage of new construction projects, by requiring buildings to meet mandatory and / or performance based compliance standards. Requirements relating to the influence of the construction phase of a project are also considered, with the requirement for thermal bypass inspections to be carried out on all buildings. These are designed to inspect insulation installation and ensure "tighter" buildings with less air leakage. There are no provisions in the code relating to energy use in occupation.

General code requirements are outlined separately for the following building types, as follows:

Commercial and multi-family residential buildings

Commercial buildings greater than 20,000 sq ft and multi-family residential buildings must be 30% more energy efficient than a baseline building, which is defined as a building of the same size and use as the proposed building that meets the minimum efficiency requirements of ASHRAE 90.1-1999. This target was established to align the building code with the City's current Architecture 2030 targets. Prior to issuing a permit, the building department will require that the increased performance of the proposed building be quantified using the Performance Rating Method described in Informative Appendix 'G' of the 2004 edition of ASHRAE 90.1. The following information will have to be submitted with each permit application:

- Energy calculations for the baseline building design.
- Energy calculations for the proposed building design.
- Calculations verifying the percentage improvement of the proposed design over the baseline design.
- A list of energy-related features incorporated into the proposed design to increase efficiency.
- A thermal bypass inspection must also be carried out.

In addition, the building shell and HVAC equipment must meet mandatory requirements set out in the code, including the requirements that the building elements meet minimum insulation values and all HVAC equipment must be ENERGY STAR labeled. In addition, thermal bypass inspections must be carried out.

As an alternative to the performance based approach, projects may follow the Simplified Approach Option for Building Envelope; provided the gross floor area of the building is 20,000 square feet or less; the building uses unitary heating and air-conditioning equipment; and the building is an office building or retail building. This option does not require energy performance calculations to be performed, but sets out prescriptive requirements (over and above the mandatory standards) that a building must meet to demonstrate compliance.

Buildings that use no or very low amounts of fossil fuels, are exempt from the requirements of the code, as are buildings certified as LEED silver or above.

One and Two Family Detached Dwellings and Town Houses

Single and dual family detached and town house dwelling requirements are based on an adopted and amended version of the 2006 International Energy Conservation Code (IECC) and must meet the mandatory requirements of the IECC code, along with the City's amendments outlined in the Energy Conservation Code. In addition to meeting the mandatory provisions of this code dwellings must either meet additional prescriptive requirements or follow the performance based compliance path outlined in IECC Sections 404 and 405. These require that the proposed residence be 30% more energy efficient than the baseline residence, defined as a computer representation of the proposed residence that meets the minimum requirements of the 2003 IECC.

Mandatory provisions of the code which all residential buildings must meet include the following:

- Furnaces are required to be 90% efficient (AFUE) and must be ENERGY STAR labeled.
- Boilers, heat pumps and fans must be ENERGY STAR labeled.
- Air conditioners must have a seasonal energy efficiency ration (SEER) of 15 and be ENERGY STAR labeled.
- 70% of interior lighting must be ENERGY STAR labeled.
- A thermal bypass inspection must also be carried out.

As with commercial buildings and multi family residences, buildings that use no or very low amounts of fossil fuels, buildings certified as LEED Homes Silver or above, and buildings certified as Build Green New Mexico Silver or above, are exempt.

Post Construction (In Operation) Performance

There are no provisions in the proposed code related to the in operation energy use of commercial or residential buildings, though, as previously noted, thermal bypass inspections must be carried out in order to encourage the construction of more air tight, thermally efficient buildings with lower energy use during building operation.

2. ENERGY EFFICIENCY POTENTIAL

2.1. Policy Uptake

Compliance with the proposed Albuquerque Energy Code will be mandatory for all new construction projects in the City of Albuquerque.

2.2. Energy Savings Potential

By requiring that large commercial buildings (greater than 20,000 sq ft) follow a performance based compliance path, the City is able to set specific energy performance targets for buildings compared to a "baseline" version of the same building, which would not be possible with prescriptive requirements alone. For large commercial buildings to comply with the Albuquerque Energy Code, they must be designed to be 30% more energy efficient than an equivalent building designed to ASHRAE 90.1-1999 minimum standards. Residential buildings following the performance based compliance path must be designed to be at least 30% better than 2003 IECC standards. Small commercial buildings or residential buildings following prescriptive compliance paths are designed to achieve energy savings comparable to those required using the performance based approach.

3. COST OF IMPLEMENTATION

3.1. Program Cost to the City

Exact costs to develop the policy for the City are difficult to ascertain, particular due to the ongoing legal action currently surrounding the implementation of the code. The code was developed by the City's Green Ribbon Task Force, made up of 23 stakeholder representatives including local builders, developers, architects, unions and other prominent companies within the City, in conjunction with the City's Departments of Planning and Code Enforcement. Task Force representatives worked on a voluntary basis, with the majority of the code development itself carried out by the City's Department of Planning Green Building Coordinator.

3.2. Cost to the Developer

Detailed costs to developers are not available from the City. Anecdotal evidence indicates that the City expects builders and developers to see increases in costs, but expect that improvements in energy efficiency alone will offset the impact of any costs increases.

4. ADMINISTRATIVE FEASIBILITY

4.1. Administering Agency

The code was developed by the City of Albuquerque Department of Planning, in conjunction with the Department for Code Enforcement and Green Ribbon Task Force. Once implemented, the code will be administered by the Department of Planning.

4.2. Ease of Initiation

Although originally intended to be implemented in April 2008, the implementation date was extended to October 2008 to allow additional industry consultation to take place. Due to the legal action taken against the City and subsequent preliminary injunction preventing the City from implementing the code, the code has yet to be released. City officials are currently consulting with stakeholder groups in order to try to implement areas of the code not covered by the legal action. However, the release date for both the preliminary and final release of the code is currently unknown.

4.3. Educational Outreach Requirements

The City's educational outreach program began six months prior to the originally intended date for the release of the code, in order to give the industry sufficient time to become accustomed to the requirements of the code prior to its release. Throughout this period, a number of training seminars were held by the City for local industry in order to train and disseminate information on the code to local stakeholder groups. It is expected that educational outreach activities will be key to the ultimate success of the code once the current legal issues have been resolved however currently the outreach program is on hold pending resolution of the ongoing legal case.

In addition to specific education activities relating to the energy code, the City maintains a number of green building initiatives to encourage and foster an interest in green building within the City. For example, they established a Green Path program to encourage and facilitate the voluntary design and construction of exemplary energy efficient buildings that substantially exceed minimum code requirements. Green Path Energy Conservation Certificates, issued with the building permit, are official recognition by the Green Path Administrator of the extraordinary level of achievement these projects represent. Albuquerque Green certificates are issued at completion of high-performance green building projects.

The City also promotes the Build Green New Mexico program, a voluntary organization set up to encourage homebuilders to use technologies, products and practices that will:

- Provide greater energy efficiency and reduce pollution
- Provide healthier indoor air
- Reduce water usage
- Preserve natural resources
- Improve durability and reduce maintenance

Outreach is primarily conducted through the organization's website and through training courses given to local residential builders and building designers on green building design.

5. STAKEHOLDER IMPACTS

5.1. Acceptability to the Building Industry

Although local industry representatives were involved throughout the stakeholder process, contentious standards within the code ultimately led to legal action being taken against the City, the details of which are outlined below:

Current Litigation Proceedings

Prior to legal proceedings taking place, an eleven member Task Force made up of contractors and distributors with Heating, Air-Conditioning and Refrigeration Distributors International (HARDI) and Air Conditioning Contractors of America (ACCA) membership was formed in order to communicate directly with the City regarding the contentious issues within the code that it believes violate federal law. In particular, areas relating to the enforcement of appliance standards greater than federal standards, such as those surrounding HVAC-R equipment and water heaters, have come into question. For example, the code requires 14 SEER air-conditioning equipment and an Annual Fuel Utilization Efficiency of 90% for furnaces in all new construction and retrofit mechanical systems (delayed until 2010 for retrofit systems) while the current federal standard for residential air-conditioning is 13 SEER and 78% AFUE for gas furnaces. The Task Force argues that the stricter

City codes are preempted by federal law, and the City cannot enforce them without first obtaining a waiver from the US Department of the Environment. There was additionally some opposition to the most stringent areas of the code as it was feared that, without proper enforcement, a black market of less energy efficient equipment would be created in the City.

City policy makers believe that the code is not in violation of federal law due to the performance based approach which must be followed. Despite this, The City believed that the nature of the code allows contractors to reach those efficiency goals by any number of means, for example through improvements in insulation and energy efficient windows as additives to the exact equipment requirements, in order to calculate the desired goals.

6. REFERENCES

Due to the ongoing legal action surrounding the code, representatives from the City were unavailable to participate in consultation; therefore the information contained in this case study is based on desk research only.