



Third-party Code Compliance for Energy Code Implementation in Maine

**A guidance document requested by the State of Maine
Technical Building Codes and Standards Board and Mr.
Douglas Baston, consultant to the Board and to
Efficiency Maine**

A guidance document developed for the Maine Building and Energy Codes Advisory Board, focusing on various systems and elements of third-party compliance systems.

**Building Codes Assistance Project
8/1/2009**



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Introduction

Maine recently approved code legislation adopting the 2009 IECC and ASHRAE 90.1-2007 for phased implementation in 2010 (jurisdictions with codes) and 2012 (jurisdictions without codes) ([Maine Public Law Chapter 699](#)). The law also established a Technical Building Codes and Standards Board (“the Board”) within the Department of Public Safety to adopt, amend, and maintain the Maine Uniform Building and Energy Code (MUBEC) The Board was also charged with establishing a “third-party code compliance” system to assist the state with implementation. This paper reviews various third-party compliance systems used in other jurisdictions that may inform and guide the Board in its task.

While there are a number of third party code compliance models used around the country, few systems are specifically designed for and applied to energy code compliance. Additionally, there is considerable confusion regarding some of these models. For example, the terms “third party compliance” and “special inspections” are commonly confused when used in the health/life/safety (H/L/S) compliance arena¹. This document will offer further clarification of these issues.

Background

The most demanding aspect of code compliance is to ensure that local jurisdictions properly administer the code. Implementation involves considerable coordination throughout the construction process, including various permit applications and documentation, plan reviews, follow-up enforcement inspections, and issuance of final acceptance and certificates of occupancy. Many local jurisdictions in Maine will not have the work force, resources, or infrastructure to effectively measure code compliance, potentially creating a considerable disparity in compliance rates between communities. Third party compliance is a cost-effective option to increase consistent compliance statewide. As Blue-Line Inspection Services, a consulting firm from Dallas, Texas, declares, “Third party code enforcement provides smaller jurisdictions the confidence of quality building inspections without the exasperation and cost of developing a large code enforcement department.”¹

Benefits

There are several key benefits to employing a third party code compliance strategy. On the local level, it allows existing building departments to focus their resources on life, health and safety requirements by providing municipalities with professionals who are knowledgeable of and certified in current energy code requirements. A third party compliance strategy also helps the state by giving it the ability to establish a code enforcement infrastructure on the ground in a relatively short amount of time (as opposed to developing one in-house, jurisdiction by jurisdiction) with uniform and consistent code interpretation across the board. Finally, a third party strategy will help the state fulfill federal mandates related to compliance with the 2009 IECC, which Maine has adopted for implementation starting in 2010.

Moreover, when construction volumes suddenly increase beyond historic norms, perhaps due to a large subdivision or a large commercial project, a jurisdiction may have difficulty meeting all the new permitting requests in a timely manner. A jurisdiction using third party inspectors can alleviate accumulated work by

¹ The application of and requirements for a third party system are outlined in the summary and recommendations at the end of this document.

directing the third party provider to add or redirect staff to the increased workload, as opposed to a traditional jurisdictional effort which would require hiring and training new personnel that may not be needed when the building surge is over. With such quickly scalable capacity, and known cost, a jurisdiction is able to conduct a more efficient planning process concerning building inspections and permitting. Some cities, such as Dallas and Philadelphia, as well as the state of Florida, thrive on third party code compliance strategies to ensure that construction is adequately reviewed, while staying within constrained departmental budget as construction levels wax and wane. Partnering with a third party saves and levelizes building department and state agency resources. “The burden of the costs associated with staff, like salaries, medical benefits, and retirement, are also lifted from the agency.”²

Qualifications and Capabilities – Traditional Third Party Compliance

Assuring building safety and overall compliance with code regulation is no small feat. Third party organizations must be well-qualified to succeed in any proposal process and should emphasize their training, broad subject related skill set, programmatic experience, and various industry organizations that recognize their work. The experience and qualifications normally held by these organizations, particularly those offering commercial building inspection services, includes staff with Professional Engineer (PE) certification - trained engineers in the mechanical, structural, and electrical engineering professions that frequently have a design background. The professional code certification series offered by the International Code Council includes training and examinations designed to measure the technical knowledge necessary for competent inspections and a qualified practice.³ Therefore, a jurisdiction looking for qualified third party contactors may wish to look to the ICC certifications held by contractor staff.⁴ Many large architecture/engineering (A/E) firms have a code expert on staff that performs a specialized review of the group’s work for compliance with codes and standards. Such firms in Maine may wish to offer third party code compliance review services.

Continuous training to maintain currency in code updates and revisions is costly and time consuming. Third party businesses capitalize on this advantage over many building departments or state agencies that, with limited budgets and time, cannot afford supplementary training and certifications for each employee. Nearly all of these businesses are familiar with the ICC training and certification for code review and inspections, including education and knowledge of the foundational codes (e.g. International Building Code (IBC)ⁱⁱ, International Residential Code (IRC)ⁱⁱⁱ, International Energy Conservation Code (IECC)^{iv}) which is valuable and marketable to any local building department or state agency.

Naturally, third party organizations have broad experience in building construction, codes and the construction process. Services provided by third parties vary, but they generally include the following: inspection and quality assurance, plan review and approval, standards applications, product listing, design and engineering, code and standard compliance, product evaluation, performance and thermal testing, Fourier Transform Infrared (F.T.I.R) testing, and evaluation and follow-up, along with site inspection and final approval of buildings as-built.

Although requirements differ among jurisdictions, third party organizations are able to accommodate these discrepancies and conduct effective field inspections, which often include separate inspections of

ⁱⁱ The IBC is the most widely adopted building code in the United States. When referenced in local, state or federal legislation, the International Building Code becomes the minimum requirement for construction. A jurisdiction either uses the code as is or amends it to fit specific needs of the community. When referenced in local, state or federal legislation, the International Building Code becomes the minimum requirement for construction. A jurisdiction either uses the code as is or amends it to fit specific needs of the community.

ⁱⁱⁱ The IRC is a comprehensive residential code that creates minimum regulations for one and two family dwellings of three stories or less. It brings together all building, plumbing, mechanical, fuel gas, energy and electrical provisions for one and two family residences. The IRC also provides a prescriptive approach (i.e., a set of measures) and a performance approach (i.e., energy modeling) for determining compliance.

^{iv} The International Energy Conservation Code (IECC) encourages energy conservation through efficiency in envelope design, mechanical systems, lighting systems and the use of new materials and techniques. It is referenced several times within the IRC.

the foundation, the frame and electrical, the plumbing and insulation, and, finally, the finish frame. Another benefit is that third party businesses understand the roles of the parties involved and have the knowledge to effectively communicate and coordinate among them throughout the permitting and construction process.

Many third party inspection firms also maintain memberships in organizations that are relevant to standards in the construction industry. Evidence of such memberships is particularly relevant because it substantiates a business's professionalism in that many such organizations maintain high thresholds for membership. An example of some member groups include: American Society for Testing and Materials (ASTM), American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), International Code Council (ICC), Structural Insulated Panel Association (SIPA), Exterior Insulation Manufacturers Association (EIMA), Single Ply Roofing Institute (SPRI), and the VSI Alliance (Virtual Socket Interface).

Field Examples – Traditional Third-Party Compliance

Pennsylvania

The City of Pittsburgh, Pennsylvania Bureau of Building Inspection (BBI) allows third party permitting in the commercial sector for buildings that do not require a certificate of occupancy.⁵ The Bureau will only accept plans for permitting that have been previously approved by a registered^v Third Party Agency (TPA).

Requirements for the TPA are fairly straightforward: the builder or owner must complete the "Application for Independent Plan Review" form following a zoning approval. The application - including a building permit voucher number - must be initialed at the municipal Engineering Counter to ensure that zoning has been approved before submitting the documents to the TPA.⁶ The items must be a complete package, including mechanical, electrical, plumbing drawings, and, if necessary, the energy conservations data or documents.⁷ After the TPA has approved the documents^{vi}, the builder/owner is given two sets of stamped drawings and a signed compliance statement, as well as punch lists that are to be submitted to the BBI's Plan Examining Department. Lastly, the Examining Department will review the submission to determine completeness before issuing the permit. BBI inspectors perform site inspections in the usual manner, and scheduled inspections are required without exception.

In order for a TPA to become registered with the city, they must meet that city's own mandatory requirements and qualifications. The TPA must be Uniform Construction Code (UCC) Certified^{vii} by the Commonwealth of Pennsylvania Department Labor and Industry and provide the following as part of registration package:

- A copy of the Labor and Industry issued Third Party Agency certificate
- A listing of all employees who intend to be reviewers and copies of their UCC certification cards
- Proof of Professional Errors and Omissions Liability Insurance pertaining to performance of construction code enforcement activities, insured up to \$1,000,000.00
 - Must site the City of Pittsburgh as the certificate holder
 - Must also list Workers' Compensation Insurance
- Notarization of the application packet where indicated⁸

^v The Bureau of Building Inspection (BBI) has a catalogue of approved and registered Third Party Agencies (TPA) who are qualified to review plans/drawings of commercial buildings. A business or firm not listed will not be accepted by the BBI.

^{vi} If initially denied by the TPA, the Professional(s) of Record must respond and/or correct the punch list items generated by the TPA Review.

^{vii} Certification requirements for the UCC are set out in the Uniform Construction Code Certification Booklet http://www.dli.state.pa.us/landi/lib/landi/ucc/ucc_certification_booklet.pdf

After registering, TPA's must also submit and notify the BBI of any changes made to their liability insurance, as well as any personnel changes within thirty days of the change. Renewals include submitting the above information before July first of each year.⁹

Washington, D.C.

The Washington example focuses on elevator commissioning. Although not directly related to building codes, we are able to learn from the third party system they have instituted.

The Department of Consumer and Regulatory Affairs is the agency responsible for all construction and inspection related to elevators. In 1999, the Department established a Third Party Elevator Inspection Program to manage all services provided by third party elevator inspectors.¹⁰ This program is governed by the Administrator of Building and Land Regulation Administration (BLRA).

Under this program, elevator inspection projects are assigned to available and accredited third party inspectors by the administrator or by the originator of the construction project.^{viii} The administrator issues a fixed number of approval stickers to each inspection agency, with each sticker having a serial number under to which project information is assigned when inspected. Each inspection agency has an appointed "professional in charge" who is responsible for accounting and reporting their work to the administrator. Specifically, their work log, in hard copy and electronic format, should include all the inspection stickers assigned to them, the associated sticker numbers, issuing date and project address, and the type^{ix} of elevator inspection completed, a listing of items found to be non-compliant, and inspection result. In order to obtain additional elevator inspection approval stickers, the inspection agency must submit their work log in hard copy format to the administrator. Additionally, the administrator has the authority to arbitrarily inquire after the inspection agency's operation and therefore must have the log available in electronic format upon request. In the event an elevator does not comply with the District of Columbia Construction Codes, ASME^x Elevator Code, or any other applicable standard, the agency will inform the administrator. The administrator is responsible for notifying the project owner or originator of the failed inspection before an agency affixes an "Out of Service" sticker to any elevator or equipment not found to be compliant.

An agency is qualified as an accredited third-party inspector after it has submitted to the administrator a statement of qualifications, a listing of personnel who will be performing duties under the Third Party Elevator Inspection Program, and a notarized sworn affidavit containing a Statement of Independence^{xi} and proof of errors and omissions coverage insurance of up to \$1,000,000.00. By application, the agency acknowledges that it is in full compliance with all conditions and attests that the personnel involved under the Program are qualified. In particular, elevator inspectors must have:

- Knowledge of the Elevator Code and other sections of DC Codes that pertain to elevator systems and equipment under inspection
- Current national certification by NAESA^{xii} as a Certified Elevator Safety Inspector
- A minimum of five years of documented experience in installation or documentation of elevator maintenance

^{viii} A list of approved third-party inspection agencies is located on the D.C. Department of Consumer and Regulatory Affairs' website. There are 18 agencies available for elevator inspections:
http://dcra.dc.gov/DC/DCRA/Publication%20Files/DCRA/Inspections/Third%20Party/3rd_Party_Agencies_3-24-11_Updates.pdf

^{ix} Any plans, drawings, specifications, or electrical files in connection to the elevator performance must be included and are the property of the Department and protected under copyright law.

^x American Society of Mechanical Engineers

^{xi} The inspection agency applying for accreditation shall provide a notarized sworn affidavit to the Administrator, which is signed by an authorized representative of the inspection agency, attesting that the agency, its inspectors, and the professional(s)-in-charge of the third-party inspection or inspection duties will remain independent of conflict of interest.

^{xii} National Association of Elevator Safety Authorities or any other certification body accredited by ASME is adequate.

- A minimum of four years of documented code compliance elevator inspection in a jurisdiction using any model codes
- A minimum of three years of documented experience in the design of elevators at the level of engineer in training or higher

Texas

In Texas, the requirements for a third party inspection agency (TPIA) for modular housing in-plant inspections are similar to Pennsylvania. An agency seeking approval as a TPIA must submit a written application to the executive director of the Texas Department of Licensing and Regulation.¹¹ The application must include the following materials:

- An organizational chart showing the names of managerial and technical staff who will perform construction inspections
- A listing of qualifications and resumes for employees indicating their academic and professional experiences in related fields, along with all current ICC certifications
- Documentation of ability to perform inspections - a formal description of the agency's supervision and training program for inspectors, performance records of manufacturers, examples of inspection reports, agreements or contracts with manufacturers, and any other pertinent information
- A notarized statement by CEO confirming that all of the certifications within the application are true and attesting that employees have sound judgment, will not financially benefit from any products involved in their testing, uniformly implement codes and standards, and will not produce design manuals or perform services with companies with which they act as a third party agent
- A listing of states in which the agency is currently approved to provide product certification, validation, or third party inspection services and a complete description of each system and program involved¹²

Inspections are conducted by a certification team,^{xiii} as specified in the Texas Industrialized Building Code Council, and have two primary purposes: verification that the manufacturer can craft modules or modular components while complying with laws, rules, and relevant building codes, and confirmation that the manufacturer has a compliance control structure that will ensure future compliance.¹³ The certification team will issue a plant certification to the manufacturer after the department has determined that they have met the requirements for certification.¹⁴ Each certification report must include:

- The date of certification
- The name and address of the manufacturer
- The names and titles of personnel performing the certification inspection
- The serial or identification numbers of the modules or modular components inspected
- A list of non-conformance items observed on the modules or modular components inspected (with appropriate design package references) and corrective action taken in each case
- A list of deviations from the approved compliance control procedures (with section or manual references) observed during the certification inspection with the corrective action taken in each case
- A list of conditions of certification with which the manufacturer must comply to maintain the certification
- A specialized statement that manufacturer company is competent in performing their tasks; and
- The signature of an authorized department employee¹⁵

In order to monitor the manufacturer's compliance scheme, the TPIA/TPI has the authority to "conduct announced or unannounced inspections at the manufacturing facility at reasonable, but varying, intervals to review any and all aspects of the manufacturer's production and compliance control program."¹⁶

^{xiii} The certification team consists of: a team leader and one or more department inspectors or third party inspectors. The team leader may be a department employee, an engineer, or other qualified person as determined by procedures established by the Texas Industrialized Building Code Council.

If the TPIA/TPI determines that the manufacturer is not capable of meeting the certification requirements, it will submit a non-compliance report that details “the specific areas in which the manufacturer was found to be deficient and may make recommendations for improvement.”¹⁷

This program stipulates that all managers and builders must submit monthly reports to the licensing and regulation department that include details regarding “all industrialized housing, buildings, modules, and modular components that were constructed or sold and to which decals and insignia were applied during the month.”¹⁸ This is to assist the licensing and regulation department in its monitoring and evaluation of third party inspectors and design review agencies so they provide performance reports and recommendations to the council as necessary.

One third party compliance agency, Blue-Line, performs a minimum of two inspections to ensure projects are in full compliance with the International Energy Conservation Code (IECC). The first is an insulation inspection before brick and drywall installation,^{xiv} where the inspector will review the sheathing/air sealing, insulation, windows (glazing area, u-factor, SHGC), HVAC ductwork installation and insulation, as well as recessed lights. The second, to take place during the final construction phase, focuses on the whole building. Among the items that will be reviewed are: attic insulation, hot water systems, heat traps on water heaters, heat pump thermostats, heating and cooling equipment and ductwork, weather-stripping, and, lastly, envelope penetration (such as vents, electrical and plumbing outlets). The inspections accompany a REScheck^{xv} building review. Following the inspections, building contractors submit documentation to the local building department of code official verifying that the building is in compliance. Inspectors are International Code Council (ICC) certified and often members of professional groups like the Structure and Warranty Approved Inspector^{xvi}.

Other Potential Third-Party Compliance Models – Special Inspections

This option is essentially the same as third-party compliance, but usually the provider is the agent of the builder or building owner. One example is the implementation of the National Electric Code (NEC) by many states and jurisdictions across the nation. Providers conduct these special inspections for building owners or developers, who then submit the results to the code official before he or she issues a Certificate of Occupancy. If a Special Inspection were to be developed by Maine for the energy code, the Board would want to establish that either the Special Inspection organization would serve as the agent of the jurisdiction or state, however that locale being serviced would be administered.

Other Potential Third-Party Compliance Models – Commissioning

BCAP is currently working on a project to develop a “Commissioning Light” process that we hope will improve energy code compliance verification; bring the elements of commissioning that improve integrated design as well as building performance. Commissioning is generally considered as being a third party oversight process that begins with design oversight and provides QA/QC to that process to assure that the eventual building owner’s needs are met. It then follows through the entire bidding and construction process through final systems testing and verification, finally ending after the building is occupied with further testing and verification that the building operates to the original design intent. While this process has many advantages, it tends to be costly and, since it actually continues beyond the issuance of a CO, is not applicable exactly as designed. The information from the BCAP study will be added to this document when it is complete.

^{xiv} This can be broken into two inspections: one to inspect the exterior sheathing prior to brickwork and a second after insulating the interior.

^{xv} REScheck™, developed and distributed by the U.S. Department of Energy, is a recognized tool for easily showing compliance with national model energy codes. Builders, designers, and inspectors use REScheck™ to demonstrate compliance with state building energy performance standards as outlined in the 2000 International Energy Conservation Code.

^{xvi} ICC Certified: Building Inspector Residential, Energy Plans Examiner, Residential Energy Inspector, Residential Mechanical Inspector, and/or Residential Plumbing Inspector.

Other Potential Third-Party Compliance Models – HERS-As-Codes

The New York HERS-AS-Codes experience

Numerous jurisdictions around New York State have adopted the US-EPA ENERGY STAR Home criteria as their residential energy code. The HERS-As-Codes model uses Home Energy Rating System (HERS) certified raters who possess additional training in local or state codes as third-party enforcement agents. The Town of Brookhaven, the first to adopt the ENERGY STAR Code example, has run it successfully since 2007. HERS raters conduct their usual plan review, assuring the plans “as-designed” reach the ENERGY STAR level of compliance, and assuming a minimum air leakage that they will verify later with a blower door test. Raters then work with the prospective builder of the home to assure that all the details of the as-designed plans are followed in the field and during construction. They test whole-house air sealing and duct tightness requirements near the end of the project construction, and finally, they run the as-built home measurements through the REMRate software for determination of the ENERGY STAR Score that will be affixed to a label permanently attached to the home. During this time, raters also check certain additional, mandatory code requirements that are not required by ENERGY STAR or reflected in the Rating Score. The REMRate software developer created a New York-specific version incorporating reports and checklists for all the basic requirements of the Energy Code of New York, including these mandatory requirements. This allowed the raters and jurisdictional staff to use all the reports necessary for the program to verify energy code compliance. The Long Island Power Authority (LIPA) paid for the cost of the rating, as well as additional training for the raters to increase their numbers and give them a solid understanding of the residential requirements of the NY Energy Code.

In the private sector, HERS raters are trained to standards established by the Residential Energy Services Network (RESNET). RESNET is a not-for-profit membership corporation that acts as a national standards making body for building energy efficiency rating systems. RESNET standards are recognized by the:

- Mortgage industry for capitalizing energy efficiency in mortgages
- Financial industry for certification of "white tags"
- Federal government for verification of building energy performance for:
 - Federal tax credit qualification
 - EPA ENERGY STAR labeled homes
 - U.S. Department of Energy Building America program

HERS Raters perform comprehensive testing, inspections, and plan reviews on homebuilding projects, usually to insure that these homes achieve an ENERGY STAR or similar residential advanced certification. Where this HERS infrastructure exists, and there is good coverage by certified raters in the state or jurisdiction, or where it might be easily developed, raters could be engaged to perform inspections for code compliance, and plan review.

Several Mid-Hudson municipalities in New York use HERS raters perform a code compliance function. In addition to their normal HERS training and testing, they are required to take New York-specific energy code training. The New York code serves as the baseline for review and inspections for ENERGY STAR compliance. The REMRate software used by the HERS raters includes special reports for code compliance, including inspection checklists and the certificate of compliance required by the IECC, and in this case, reports modified by the software providers, AEC, for New York-specific code requirements as well.

In the Long Island program, the Long Island Power Authority (LIPA), the program sponsor, and its contractor, Conservation Services Group (CSG) provide HERS raters training in the code, and facilitate a relationship between members of the code compliance stream - builders, designers and code enforcement officials - with the raters.

The Long Island program is relatively new and needs further research and reporting, but it appears to be a good example of how this option might work. We do know that its use has enabled a more thorough review of plans and a more thorough inspection of homes by trained energy professionals for compliance and performance. The Town of Bedford, NY, is using HERS-As-Code and ENERGY STAR as its code in order to promote carbon reductions in that community. Further, the Town incentivizes the achievement of higher efficiency by charging a lower permit fee for homes that score higher on the rating scale and show appurtenant carbon reduction. This might be a desirable option for Maine and other states and jurisdictions as well.

Summary and Recommendations

There are a number of opportunities outlined in this paper that the Board might consider and work with to provide energy and other code compliance in areas where there is sparse or no code enforcement infrastructure. In particular, we recommend that Board consider the following opportunities for development:

1. Develop a series of Maine-specific training and certification courses for the 2009 IECC/ASHRAE 90.1-2007 for "Maine Energy Code Professionals" (MECPs) that includes testing to qualify potential third-party contractors. Although offered to all interested parties, including the general public and stakeholder groups, this training would cover advanced level information for potential certified professionals. Furthermore, the state should develop the necessary compliance forms and related implementation materials. Finally, the state should also conduct a thorough training assessment to best determine training needs and develop the best quality training for those needs.
2. Establish capacity within the Board or other state agency to administer MECP certification program.
3. Encourage the existing State HERS provider to expand the number of raters and become trained and certified as MECPs and third-party providers of Maine energy code compliance. The state might encourage Efficiency Maine or individual utilities to invest in this infrastructure development to add to their marketing capabilities for their ENERGY STAR New Homes and Home Performance with ENERGY STAR programs.
4. Reach out to current Maine A/E firms and encourage them to take part in the training and develop the certified MECP capacity to provide this service for energy code compliance.
5. Engage with current NEC and any other special inspection contractors to also encourage participation in providing energy code compliance.
6. Establish the capacity within the Board or a designated state agency to provide intake and data gathering services for the third-party compliance efforts of communities that may not have current capacity, as well as for gathering information for ARRA compliance from all jurisdictions that will be enforcing the energy code.

The Matrix below serves as a quick reference for the elements of and requirements for each of the systems outlined above, for consideration by the Board.

Matrix of Third Party Elements and Issues

Option	Description	Agent of...	Qualifications	New Cert./Training Needed	Benefits	Disadvantages	Costs (Est.)
Third Party Inspection	Independent consultant contracted by the jurisdiction to perform specific duties.	Jurisdiction (state or local)	Broad area of expertise, often with several certifications and expert knowledge of codes and standards	ICC or State Energy Code unless firm already has this capacity. Require MECP certification.	Agents likely to have capacity jurisdiction can adapt quickly	May be more inclined towards commercial construction only	TBD; Jurisdiction pays
Special Inspection	Required by code to perform special inspection or series of inspections.	Normally building owner	Usually PE or agent with certified in specific code, i.e. National Electric Code (NEC)	ICC or State Energy Code	New S.I. could focus on energy code specialty	Need to develop Energy Code special inspection and cert.; Adjust agent responsibility to represent jurisdictions	\$350-TBD based on need for re-inspections.
Commissioning	Design intent to final testing 3 rd party oversight; could include energy code verification	Normally Building Owner	Generally A/E or Engineering firm with PE and sometime Cx certification. Several sets of national guidelines, including ASHRAE.	To be determined; BCAP currently developing Cx-For-Code model	Can assure integrated design, building performance	Needs modification to provide just elements for energy code compliance	.5%-1% of project cost
HERS-As-Code	Home energy raters generally providing design and construction consulting and modeling for programs like ENERGY STAR Labeled homes. Energy code can be demonstrated by REMRate software along with rating.	Normally the Builder with program manager as secondary. This must be reversed for code compliance, as the Rater must serve the jurisdiction for code compliance	Raters with training and certification by national RESNET	Need basic Residential energy code training to assure QC on mandatory items not covered by software.	Infrastructure in place, trained energy professionals accustomed to working with assuring energy features. Opportunity for sustainability high	Must change affiliation to jurisdictions to provide energy code compliance QA/QC	\$250-\$750 or more depending upon locale. Usually paid by builder or as incentive by utility or system benefit fund program administrator.

¹ Blue Line Inspection Services. <http://www.bluelineinspections.com/>

² Bureau Veritas North America. Code Compliance Services.
http://www.us.bureauveritas.com/wps/wcm/connect/BV_USNew/Local/Home/Our-Services/Construction_Materials_Testing_Geotechnical/Construction_Code_Compliance_Services

³ Bureau Veritas North America. Code Compliance Services.
http://www.us.bureauveritas.com/wps/wcm/connect/BV_USNew/Local/Home/Our-Services/Construction_Materials_Testing_Geotechnical/Construction_Code_Compliance_Services

⁴ International Code Council, Certification Information and Services.
<http://www.iccsafe.org/certification/inspector.html>

⁵ Pittsburgh Bureau of Building Inspector. Building Permitting Forms.
http://www.city.pittsburgh.pa.us/BBI/html/permit_forms.html

⁶ City of Pittsburgh. Department of Public Safety – Bureau of Building Inspection. Procedures for Third Party Plan Review Agencies. http://www.city.pittsburgh.pa.us/BBI/assets/permits/09_TPAPRP.pdf

⁷ Id.

⁸ City of Pittsburgh. Department of Public Safety – Bureau of Building Inspection. Application Instructions for Third Party Agency Registration http://www.city.pittsburgh.pa.us/BBI/assets/permits/09_TPARI.pdf

⁹ Id.

¹⁰ The District of Columbia, Department of Consumer and Regulatory Affairs.
<http://dcra.dc.gov/DC/DCRA/Inspections/Construction+Inspections/Get+an+Elevator+Inspection>

¹¹ Texas Department of Licensing and Regulation. Industrialized Housing and Buildings. Criteria for Third Party Inspection Agencies and Inspectors. <http://www.license.state.tx.us/ihb/ihbrules3.htm>

¹² Id at 3.

¹³ Id at 4.

¹⁴ Id.

¹⁵ Id.

¹⁶ Id.

¹⁷ Id.

¹⁸ Id at 3.

Appendices attached

APPENDICES

1.1 DC Elevator Inspection List, Source: District of Columbia, Consumer and Regulatory Affairs Department

FULL SCOPE OF ELEVATOR INSPECTIONS

Inspections shall always verify substantial consistency between the installations and the approved plans. To the extent that the items that follow are part of the scope of construction, as depicted or specified on the approved permit application documents, at least the following features and provisions shall be the subject to inspection performed by the third-party agent or agency.

Inspections shall be performed based on the following codes and standards editions:

- Building: DC Construction Codes 2003
- Elevator: ASME/ANSI A17.1 1996 and A17.1a – 1997 A17.1b – 1998
- Electrical: NFPA 70-96, National Electrical Code, NEC - 1996, as amended by 12G DCMR
- Accessibility: ANSI A117.1 – 1998, as amended by 12A DCMR

GENERAL

- Use Group of building
- Building permit and approved plans on site
- Elevator installation permit on site
- Structural provisions to resist weight of elevator car and counterweight, and static and Dynamic reaction forces.
- Measure mounting height of corridor call buttons and check for accessibility
- Check corridor call buttons design, arrangement and dimensions for accessibility

ELEVATOR HOISTWAY CONSTRUCTION

- Check protrusions into interior Surfaces of hoistway (construction And angle of beveled surfaces at top of

beam ledge projections that exceed 2 inches

Check rating of elevator hoistway doors as specified in door schedule

Check fire resistance rating of the construction of the top of the hoistway (same rating as the hoistway enclosure)

Check fire resistance rating of the construction of the bottom of the hoistway if not in-ground

Vent at top of hoistway

Check vent size (min. 3 SF/car or 3.5% of cross section of the hoistway)

Check 2-hr rated enclosure of hoistway vent offset, from through the opening to the exterior
Floor numbering inside the hoistway (min. 4 in. high digits)

ELEVATOR PIT

Check door of access to pit

Separate access door to the elevator pit

Min. 30 in. wide and 6 ft high

Door to swing clear of moving elevator equipment

No access to non-authorized persons

Ladder steps out of the elevator pit

Hand grip for the pit ladder, reaching 42 inches above the pit door sill

Pit floor

Floor approximately level

- Cover on sump pit, level with pit floor
- Pit drainage
 - Provisions to drain elevator pit (permanent drainage to approved point of disposal, if pit is subject to water infiltration)
 - Check point of discharge of elevator sump pump and type of receptor
- Emergency stop switch for each elevator at point of access to the pit
- Check permanent electric lighting in the pit (dedicated elevator pit circuit)
- Check illumination levels (min. 5 ftc (54 lx) illumination at pit floor level)
- Check for GFI receptacle in the elevator pit (at least one 15A duplex receptacle)

ELEVATOR MACHINE ROOM

- Check rating of EMR enclosure (e.g., 2-hr rated enclosure if open to shaft communicating more than 3 levels)
- Check rating of EMR door to interior of building (typically 90 min or 45 min, based on EMR enclosure rating)
- Check elevator machine room door against rating specified on approved door schedule
- Elevator machine room next to or beneath a rated hoistway shaft: verify separation plate is at least equivalent to 0.06 inch (14 ga) sheet steel
- Check for emergency stop switch for each elevator in EMR

- Check permanent electric lighting in EMR (dedicated EMR circuit)
- Check illumination levels (min. 10 ftc (108 lx) illumination at EMR floor level)
- Check for GFI receptacle in EMR (at least one 15A duplex recept.)
- Verify min. 7 ft headroom above floor of top-of-hoistway EMR.
- Verify that only electrical, HVAC or other mechanical equipment directly related to the operation of the elevators is installed in the hoistway or in the EMR

VENTILATION AND COOLING OF ELEVATOR MACHINE ROOMS

- Installed Cooling Capacity: check against minimum cooling capacity recommended by manufacturer
- Ventilation Rate of Elevator Machine Room
- Absence of unrelated ventilation or mechanical equipment in the Elevator Machine Room

ELEVATOR MACHINERY SPACES

- Check for emergency stop switch for each elevator in elevator machinery spaces
- Check permanent electric lighting in elevator machinery spaces (dedicated EMR circuit)
- Check illumination levels (min. 10 ftc (108 lx) illumination at elevator machinery spaces floor level)
- Check for GFI receptacle in elevator machinery spaces (at least one 15A duplex recept.)
- Verify min. 42 in. headroom above floor of top-of-hoistway

- operated switch inside each car, in the operating panel
- Verify the Phase II three-position (OFF-HOLD-ON) key-operated switch inside each car operates properly
- Check that Phase II operating panel, inside each car, has "CALL CANCEL" button
- Verify Phase II "CALL CANCEL" button operates properly
- Verify that means of two-way conversation between the car and the EMR operates properly
- Verify that means of two-way conversation between the car and a point accessible to emergency personnel operates properly
- Verify there is an audible signaling device that is audible inside the car and outside the hoistway
- If elevator travel > 100 ft: check for at least one (1) audible signaling device on the car and one (1) audible device at the designated recall level.
- Check for Phase I illuminated visual device (logo conforming to Fig. 211.3a of ASME A-117.1) inside the car
- Verify Phase I recall is initiated ONLY by fire alarm smoke detectors in the EMR, hoistway or at elevator lobbies on the floors served by the elevator(s), or by Phase I switches
- Check layout of Phase I and Phase II operating panel, inside each car, for conformity with Figures 211.3a, 211.7(a) and 211.7(b) of ASME A-117.1
- Check for manual shut-off valve between hydraulic machine(s) and hydraulic jack(s) near machine(s) and outside hoistway
- Verify there is a check valve to hold the car when the pump stops
- Check for marked manual lowering valve
- Check installation of hydraulic plunger cylinder
- For roped-hydraulic cars: check number of hydraulic jacks and number of ropes per jack
- Check code data plate (hydraulic elevator)
- Check bottom car clearance
- Check top car clearance, with and without counting equipment projecting above the car top
- Check top clearance and bottom runby of counterweight
- Check top and bottom car runby is within allowable minimum and maximum

HYDRAULIC ELEVATORS

- machinery spaces containing only sheaves
- Verify min. 54 in. headroom above floor of top-of-hoistway machinery spaces containing governors or other equipment besides sheaves

ELEVATOR EQUIPMENT (MISCEL.)

- Check location of speed governor
- Check code data plate (electric or hydraulic elevator)

ELEVATOR CAR

- Check type of elevator (e.g., passenger, freight Class A, Class B or Class C1 through C3) and rated load
- Measure net platform area of car and check against rated load and type of elevator
- Emergency rescue elevator in high rise: measure car interior dimensions and verify it will accommodate a 24"x76" cot in the horizontal position
- Measure elevator door clear width in the open position
- Verify capacity plate is permanently affixed inside each car
- Verify data plate is permanently affixed inside each car
- Freight elevators only: verify freight elevator required car sign(s) are permanently affixed inside the car
- Verify standard "no smoking" sign is permanently affixed inside each car
- Verify standard accident reporting contact emergency sign is permanently affixed inside each car
- Measure mounting height of car call buttons and check for accessibility

- Check car call buttons design, arrangement and dimensions, for accessibility
- Check car control panel design, arrangement and dimensions, for accessibility

ELEVATOR FIRE PROTECTION MEASURES

- Verify that, next to each sprinkler at top of hoistway(s), there is a heat detector that causes elevator shunt trip
- Verify that, next to each sprinkler in the EMR, there is a heat detector that causes elevator shunt trip
- Verify that there is a smoke detector in the EMR that initiates elevator recall
- Verify that there is a smoke detector in each elevator lobby that initiates elevator recall
- Check approved plans to verify whether elevator hoistway is sprinklered or if it is exempted
- Verify there is sprinkler protection at top of elevator hoistway (unless the project is exempted)
- Verify there is sprinkler protection at elevator pit. Check height above floor of pit.
- Verify there is sprinkler protection in elevator machine room
- Check elevators correctly recall to designated and to alternate level of Phase I recall
- Check for three-position (BYPASS-OFF-ON) key-operated switch at Phase I recall level
- Verify three-position (BYPASS-OFF-ON) key-operated switch operates properly
- Check for Phase II three-position (OFF-HOLD-ON) key-

1.2 City of Pittsburgh's Application for Independent Plan Review

CITY OF PITTSBURGH
DEPARTMENT OF PUBLIC SAFETY
BUREAU OF BUILDING INSPECTION
200 Ross Street, Room 320
Pittsburgh, PA 15219



To the Office of the Chief

Sergei C. Matveiev, Chief
Phone 255-2179
Fax: (412) 255-2974
Sergei.matveiev@city.pittsburgh.pa.us

Application for Independent Plan Review

Dear Chief Matveiev:

Under the provisions of the Third Party Agency Plan Review Initiative, we are requesting an expedited Third Party Agency construction document review of the project described below. The undersigned understands that no "Plan Review" of the construction documents for this project will be performed by the City of Pittsburgh's Bureau of Building Inspection. All nonconforming code compliance issues identified in the field by the City of Pittsburgh's Building Inspector, that were not addressed by this independent plan review, must be corrected and inspected prior to the completion of construction.

Project Information	
Project Name:	_____
Project Address:	_____
BBI Voucher No:	_____
Contact Person:	_____
Phone:	_____ Fax: _____
Contact/Position:	_____
Email Address:	_____

Required Signatures	
Owner/Project Manager – Printed:	_____
Signature:	_____ Date: _____
Contractor – Printed:	_____
Signature:	_____ Date: _____
Professional of Record - Printed:	_____
Signature:	_____ Date: _____
Reviewing TPA:	_____

For Department Use Only	
Comments:	_____ _____
Approving Engineer:	_____ Date: _____
<input type="checkbox"/> APPROVED	
<input type="checkbox"/> DENIED	
App. Received By:	_____