

10.1. Vermont Energy Code Compliance Program Timeline

TASK	2013	2014	2015	2016	2017
6.1 Measurement & Evaluation	DPSERVICE and ECC develop compliance Tracking and Reporting (T&R) plan; implement near-term measurement if needed	Implement mid-term T&R plan compliance evaluation towards 90%	Implement mid-term T&R plan compliance evaluation towards 90%	Implement mid-term T&R plan compliance evaluation towards 90%	Implement mid-term T&R plan compliance evaluation towards 90%
7.1 Establish Energy Code Coalition (ECC)	Form Energy Codes Compliance Coalition (ECC); develop Compliance Action Plan	Work with ECC to develop outreach program, code info clearinghouse	Work with ECC, ongoing outreach program, clearinghouse maintenance, provide evaluation review	Work with ECC, ongoing outreach program	Work with ECC, ongoing outreach program; Review 2015 IECC for adoption
9.2 Funding	ECC begin outreach to establish near and longer-term funding strategies	ECC and DPSERVICE Engage utilities/EVT/VGS/BED to establish funding; investigate plan for funding FY14	ECC and DPSERVICE Engage Manufacturers/Industry to establish funding	ECC and DPSERVICE ensure ongoing funding	Ensure ongoing funding
8. Outreach & Education (O&E)	Conduct Training Assessment; develop plans – DPSERVICE, ECC, EVT/VGS/BED. Conduct Outreach assessment & plans for both;	Implement O&E Plans; enhanced training stakeholders, begin outreach to jurisdictions	Implement O&E Plans; enhanced training stakeholders, ongoing outreach to jurisdictions, assess for Ambassadors Mentors, Circuit Rider projects	Ongoing O&E & update plans; ongoing enhanced training stakeholders, outreach	Ongoing O&E & update plans; ongoing enhanced training stakeholders, outreach
7.2 Compliance	DPSERVICE, ECC work to develop Compliance Plans, near, mid, long term; implement near-term Compliance w/Act 250, Self Cert., etc.	Implement mid-term compliance plan including MLS, Third-party	Implement long-term compliance plan including all elements; conduct compliance evaluation towards 90%	Implement long-term compliance plan including all elements; conduct compliance evaluation towards 90%	Implement long-term compliance plan including all elements; conduct compliance evaluation towards 90%
7.3 Enforcement	DPSERVICE and ECC work to develop best option enforcement plans near/mid/long term; implement near term enforcement	Implement mid-term plan w/Towns and Villages, C of Os, etc.	Implement Long-Term plan with all options, PTTR	Implement Long-Term plan with all options	Implement Long-Term plan with all options

10.2. Matrix of Recommendations and Market Actors

		Design & Construction		State Officials					
		Design Professionals	Construction Professionals	State Legislature	Department of Public Service	Department of Public Safety	Natural Resources Board	Department of Taxes	Department of Environmental Conservation
Section	Recommendation								
6	MEASUREMENT & VERIFICATION								
6.1	Work with Department of Taxes to track energy code compliance through property transfer tax system			✓	✓			✓	
6.2	Measure progress toward 90% compliance				✓				
6.3	Develop compliance tracking for commercial buildings	✓	✓		✓	✓		✓	
6.4	Assess training and outreach efforts				✓				
7	LEADERSHIP & POLICY								
7.1	Energy Code Compliance Coalition								
	Establish stakeholders collaborative to further develop code compliance strategies	✓	✓		✓	✓			
7.2	Compliance Verification								
7.2.1	Make compliance a condition of efficiency program participation				✓				
7.2.2	Explore energy codes as part of Act 250 review				✓		✓		
7.2.3	Modify RBES language to allow qualified person to sign RBES certificate while limiting their liability	✓	✓	✓	✓				
7.2.4	Incorporate COMcheck documentation into building plans			✓	✓	✓			
7.2.5	Support efforts to establish voluntary registered/certified builder system		✓		✓				
7.2.5	Explore state law to register builders		✓	✓	✓				
7.2.5	Support development of builder code of ethics that includes energy code compliance		✓		✓				
7.2.6	Add energy code compliance to closing checklists				✓				
7.2.7	Evaluate third-party inspection option	✓	✓	✓	✓		✓		
7.3	Enforcement								
7.3.1	Town role: incorporate energy codes into local zoning and building permit requirements				✓		✓		
7.3.2	Evaluate range of considerations around compliance payments			✓	✓				
7.3.3	Consider next steps on developing stakeholder support for local residential certificate of occupancy				✓				
7.3.4	Conduct random spot inspections of newly permitted properties				✓				
7.3.5	Pursue DPService/DPSafety coordination on non-residential compliance		✓		✓		✓		
7.4	Additions, Alterations, Renovations and Repairs								
	Develop strategies to address code compliance in residential renovation market	✓	✓		✓				

Section Recommendation		Design & Construction		State Officials					
		Design Professionals	Construction Professionals	State Legislature	Department of Public Service	Department of Public Safety	Natural Resources Board	Department of Taxes	Department of Environmental Conservation
8	OUTREACH & EDUCATION								
8.1	Continue and expand energy code trainings	✓	✓		✓				
8.2	Educate building suppliers and cultivate Energy Code Mentors				✓				
8.2	Add energy codes to realtor/appraiser curricula				✓				
8.3	Create educational materials for towns and cities and support their outreach efforts				✓				
8.4	Create educational handouts for utilities to distribute				✓				
8.5	Create and distribute additional educational materials for customers				✓				
8.6	Continue to support Energy Codes Assistance Center			✓	✓				
8.7	Update DPSafety code lists, info sheets, and websites to include CBES as a requirement				✓	✓			
8.7	Work with Permit Specialists and update "Permit Handbook" to educate applicants about CBES requirements				✓				✓
8.7	Identify opportunities to educate building owners and update educational websites				✓				
9	RESOURCES & FUNDING								
9.1	Appropriate funding for additional positions to support code compliance activities			✓	✓				
9.2	Explore various funding options to support energy code compliance activities			✓	✓				

Matrix of Recommendations and Market Actors (Cont'd.)

		Cities and Towns			Utilities		Trade Allies	
		VLCT/ Town Offices	Planning Commissions	VECAN/ Town Energy Committees	Efficiency Vermont	Other Utilities	Building Suppliers	Realtors/ Appraisers
6	MEASUREMENT & VERIFICATION							
6.1	Work with Department of Taxes to track energy code compliance through property transfer tax system							
6.2	Measure progress toward 90% compliance							
6.3	Develop compliance tracking for commercial buildings	✓			✓			
6.4	Assess training and outreach efforts							
7	LEADERSHIP & POLICY							
7.1	Energy Code Compliance Coalition							
	Establish stakeholders collaborative to further develop code compliance strategies			✓				
7.2	Compliance Verification							
7.2.1	Make compliance a condition of efficiency program participation				✓	✓		
7.2.2	Explore energy codes as part of Act 250 review							
7.2.3	Modify RBES language to allow qualified person to sign RBES certificate while limiting their liability							
7.2.4	Incorporate COMcheck documentation into building plans							
7.2.5	Support efforts to establish voluntary registered/certified builder system							
7.2.5	Explore state law to register builders							
7.2.5	Support development of builder code of ethics that includes energy code compliance							
7.2.6	Add energy code compliance to closing checklists							✓
7.2.7	Evaluate third-party inspection option	✓		✓	✓			
7.3	Enforcement							
7.3.1	Town role: incorporate energy codes into local zoning and building permit requirements	✓	✓	✓				
7.3.2	Evaluate range of considerations around compliance payments							
7.3.3	Consider next steps on developing stakeholder support for local residential certificate of occupancy	✓	✓	✓				
7.3.4	Conduct random spot inspections of newly permitted properties							
7.3.5	Pursue DPService/DPSafety coordination on non-residential compliance							
7.4	Additions, Alterations, Renovations and Repairs							
	Develop strategies to address code compliance in residential renovation market							

		Cities and Towns			Utilities		Trade Allies	
		VLCT/ Town Offices	Planning Commissions	VECAN/ Town Energy Committees	Efficiency Vermont	Other Utilities	Building Suppliers	Realtors/ Appraisers
8	OUTREACH & EDUCATION							
8.1	Continue and expand energy code trainings							
8.2	Educate building suppliers and cultivate Energy Code Mentors						✓	
8.2	Add energy codes to realtor/appraiser curricula							✓
8.3	Create educational materials for towns and cities and support their outreach efforts	✓		✓				
8.4	Create educational handouts for utilities to distribute				✓	✓		
8.5	Create and distribute additional educational materials for customers							
8.6	Continue to support Energy Codes Assistance Center				✓			
8.7	Update DPSafety code lists, info sheets, and websites to include CBES as a requirement							
8.7	Work with Permit Specialists and update "Permit Handbook" to educate applicants about CBES requirements							
8.7	Identify opportunities to educate building owners and update educational websites							
9	RESOURCES & FUNDING							
9.1	Appropriate funding for additional positions to support code compliance activities							
9.2	Explore various funding options to support energy code compliance activities							

THIRD-PARTY ENERGY CODE COMPLIANCE MECHANISMS: RESEARCH FROM SEVERAL LOCATIONS

Prepared for



November 11, 2011

Prepared by

Energy Futures Group
P.O. Box 587
Hinesburg, Vermont 05487



Introduction: The Challenge of Increasing Energy Code Compliance Rates in Vermont¹

The American Recovery and Reinvestment Act of 2009 (Recovery Act) provided states including Vermont with stimulus funds through the State Energy Program (SEP) and the Energy Efficiency and Conservation Block Grants (EECBG), in part to adopt the 2009 International Energy Conservation Code (IECC) or its equivalent for residential construction and the ASHRAE Standard 90.1-2007 or its equivalent for commercial construction. The funds were provided with the stipulation that recipient states would seek to achieve 90 percent compliance with these codes by 2017. In accordance with this stipulation, former Governor James Douglas wrote a letter² to DOE confirming that state officials would begin to take action toward achieving these goals. With the governor's assurance and the State Energy Plan submitted by Vermont's Department of Public Service, the United States Department of Energy awarded \$21,999,000 of SEP funds to Vermont for energy efficiency and renewable energy programs. DOE also approved the Department of Public Service's EECBG program plan and awarded the state an \$11,274,001 formula grant, a portion of which will be used for code-related programs.

In light of Vermont's acceptance of these funds, the state must now begin working toward the 90 percent compliance goal. The first step in this process is to assess the current code compliance infrastructure and draft a plan to improve on existing compliance and enforcement mechanisms. This memo is intended to explore one option for increasing energy code compliance in Vermont, namely the use of third-party inspectors, by examining the experiences of other states and jurisdictions that have implemented such a system. It begins by reviewing briefly the lack of an existing code compliance and enforcement structure in Vermont and then lays out the various aspects of a third-party inspection system as an alternative, in the context of the experience in other geographic locations.

Existing Energy Code Implementation Mechanisms in Vermont

Currently, residential buildings enforcement standards and criteria for energy codes are set on a per home basis and are completed through self-certification. As stated in the *Vermont Residential Building Energy Code Handbook*, "The law recognizes that it is the builder's responsibility to understand the Energy Code, to build to the minimum technical efficiency standards, and then to certify (on a one-page form) that the building complies with the law. No plan reviews or final inspections by Code officials are involved."³ The builder has discretion to use one of the four available methods of complying with the code. For residential homes, the builder must fill out the Residential Building Energy Standards (RBES) certificate⁴, copies of which must be posted in the home, filed with the town clerk, and sent to the

¹ Much of this introduction is taken directly from an unreleased draft of "Vermont Gap Analysis," prepared by the Building Codes Assistance Project and the Vermont Department of Public Service for the United States Department of Energy.

² A scanned version of Governor Douglas's letter can be found here:

http://www.energy.gov/media/Douglas_Vermont.pdf

³ *Vermont Residential Building Energy Code Handbook*, Third Edition, October 1, 2011

http://publicservice.vermont.gov/energy/ee_files/rbes/VT%20Energy%20Code%20Handbook_8%2025%2011.pdf

⁴ RBES Certificates are available on the Vermont Department of Public Service website:

http://publicservice.vermont.gov/energy/ee_resbuildingstandards.html and

http://publicservice.vermont.gov/energy/ee_files/rbes/rbes_certificate_form.pdf

Vermont Department of Public Service. The RBES holds builders accountable by way of consumer action: “if a home required by law to meet the code does not comply, a home owner may seek damages in court within six years of occupancy or the filing of the required certification.”

In the commercial sector, Energy Efficiency Certificates are used to demonstrate compliance with the Commercial Building Energy Standards (CBES) for new construction, alterations, renovations, or repairs. As stated in chapter 13 of the 2006 Fire & Safety Code, “Certification, approved by the Department of Public Service, indicating compliance with the Vermont Guidelines for Energy Efficient Commercial Construction, for the design and construction of any public building, other than one and two family dwellings and multi-family dwellings three stories or less in height, shall be affixed in a visible location inside the building, in the vicinity of the heating or cooling equipment or the electrical service panel, as a condition for a final occupancy permit.”⁵ Together with a signed Affidavit, the Energy Efficiency Certificate is sent to the Vermont Department of Public Service and the town clerk; the only physical enforcement is through the Division of Fire Safety, which is required to ensure the certificates are posted in the building.⁶

Gaps in the Current System

As the rules cited above indicate, both the residential and commercial energy codes have been adopted at the state level without any significant compliance or enforcement infrastructure beyond self-certification. In particular, there is no process in place for plan review or on-site inspection of residential or commercial buildings by government or contracted inspectors to ensure compliance with the relevant energy code. In both the residential and commercial sectors, the builder or contractor alone is responsible for filling out the form certifying that the building meets the energy code requirements.

In many states, the local governments are the cornerstone between builders and the state government. Efforts at the local level, including plan reviews and on-site inspections by locally employed code enforcement officers support the implementation and enforcement of energy codes. In Vermont, however, other than acting as the repository of the RBES and CBES Energy Efficiency Certificates, local governments, for the most part, do not play a role with regard to the energy code.

Properly administering the energy code at the local level can be - demanding and resource-intensive. Implementation involves considerable coordination throughout the construction process, including permit applications and documentation, plan reviews, follow-up enforcement inspections, and issuance of final acceptance and certificates of occupancy. Many local jurisdictions in Vermont do not have the personnel, resources, or infrastructure to effectively implement the energy codes or measure

⁵ Vermont Department of Public Safety, 2006 Fire & Building Safety Code. At 19.
<http://www.dps.state.vt.us/fire/06firecodeADOPTEDjune15092.pdf>

⁶ Vermont Fire & Building Safety Code 2006, Chapter 13: “Certification, approved by the Department of Public Service, indicating compliance with the Vermont Guidelines for Energy Efficient Commercial Construction, for the design and construction of any public building, other than one & two family dwellings and multi-family dwellings three stories or less in height, shall be affixed in a visible location inside the building, in the vicinity of the heating or cooling equipment or the electrical service panel, as a condition for a final occupancy permit” Available online at <http://firesafety.vermont.gov/sites/firesafety/files/pdf/06FireCodeADOPTEDJune2009CORRECTED2011.pdf>

compliance rates. Vermont law also does not specify a role for towns in regard to enforcement of the energy code and what to do if buildings are found to be out of compliance.

At the same time, however, the lack of an existing code compliance system in Vermont represents an opportunity to develop a new and effective system going forward. Third-party inspection systems represent an innovation in code compliance that can allow state and local governments to ensure that energy codes are implemented without having to develop an expensive bureaucratic architecture to carry out this duty. Given the desire to develop a code compliance system that fits well into Vermont's context of streamlined government and flexibility, a third-party inspection system may present a compelling option for developing a successful energy code compliance plan. In fact, as energy codes become more complex and increasingly require specialized knowledge and testing tools to verify, Vermont may actually be at an advantage relative to other states that have to work within a more constrained traditional code enforcement infrastructure. A third-party system of compliance may likely represent a more effective way to verify energy code compliance.

Third-Party System Considerations

Typically, third-party inspectors contract with the local municipality or directly with the permit applicant to review plans and/or provide on-site inspections to check for code compliance. From the municipality's standpoint, either arrangement has the benefit that the local jurisdiction is not required to keep a full-time code enforcement officer on staff in order to ensure that the code is being implemented.

A number of aspects must be addressed in order to establish an effective third-party code compliance mechanism that can be integrated into an existing code infrastructure. A third-party system should incorporate guidelines on all of the following considerations:

- Scope (whether the third-party compliance system covers residential building, non-residential buildings; whether it covers plan review, on-site inspections, or both)
- The funding source for the program (direct cost to builder, permit application fee, property taxes, ratepayer funds, etc.)
- Inspector certification requirements (training courses, exams, professional licenses, recommendation letters, continuing education, etc.)
- Filing requirements (forms left on-site, filed at municipal and/or local level, access to a statewide database, etc.)
- Oversight (local, state, other)
- Enforcement mechanism (plan review prior to issuance of permit, on-site review prior to issuance of certificate of occupancy, mortgage checklist requirement, review of property transfer tax return, etc.)
- Quality assurance mechanisms (periodic checks, formal evaluation studies, continuing education requirements, revocation mechanisms, etc.)
- Conflicts of interest (relationship of inspector to builder and to oversight agency)

Given that third-party code compliance systems present unique challenges, the Vermont Department of Public Service has requested a comparative review of the experiences of other states and jurisdictions that have incorporated this system in their own code implementation efforts. The information that follows provides a brief summary of the experiences of three states and one county: Washington State, New York State, Maine, and Fairfax County, Virginia (for a narrative description of each program, see Appendix A). Note that among this sample, Washington State’s program is no longer active, while Maine’s program has not been fully implemented. Nevertheless, examining the models in each of these locations may shed light on the considerations that Vermont policymakers would need to take into account in exploring a similar potential system.

Comparison of State and Local Models

The analysis compares the programs in each of these jurisdictions across several major dimensions, drawing upon conversations with individuals knowledgeable about these programs in each geographic area, as well as background research. For convenience, the highlights of this review are condensed into the table below, followed by a discussion of key points.

Comparison of Third-Party Inspector Systems

	Washington State	New York State	Maine	Fairfax County, Virginia
Residential/Commercial	Commercial	Residential and Commercial	Residential and Commercial	Commercial
Energy Code Inspections/Other Code Inspections	Nonresidential Energy Code only	Both the State Uniform Fire Prevention and Building Code, as well as the Energy Conservation and Construction Code	Falls under the Maine Uniform Building and Energy Code (MUBEC), which covers energy and non-energy related building elements	Falls under the Uniform Statewide Building Code and requires: building inspections, mechanical (including energy-related aspects), electrical, and plumbing.
Plan Review/Site Inspection⁷	Either or both. Local jurisdictions could use their own inspectors if they chose to do so.	Site inspection. Plan review conducted by Department of State.	Site inspection. The code does not specifically address a plan review process.	Formally “third-party inspectors” used for site inspection, but another provision of state legislation allows for plan review by an outside person or agency.

⁷ Plan review involves inspection of building plans and specifications prior to the issuance of a building permit, while site inspections involve going out to a site to conduct a physical inspection, often prior to the issuance of a certificate of occupancy.

	Washington State	New York State	Maine	Fairfax County, Virginia
Funding Source for Program	Inspection is a direct cost to owner/builder, but with a \$900 flat reimbursement rate backed by utility ratepayer funds. Utilities also provided funding for program administration.	Inspection is a direct cost to owner/builder, negotiated with inspector/owner at market rate (typically a few hundred dollars for home/commercial, but can be much more for complex projects)	Inspection is a direct cost to owner/builder through independent contractual arrangements, though municipality has option of contracting with inspector. Separate \$0.04/square foot surcharge goes in part toward administrative costs and training of 3 rd party inspectors.	Inspection is a direct cost to owner/builder
Inspector Certification Requirements	Training course and exam. Additional requirements for more complex projects, such as recommendation letters and job experienced. Most complex projects require professional engineer or licensed architect.	Basic training course and exam, plus 24 hours of in-service continuing education annually. Licensed architects and professional engineers with relevant experience and training are exempt from the certification requirements.	Training course and exam. The training is broken down into seven separate sections (including a split between residential and commercial codes), and training and examination are only required in those areas in which a candidate seeking certification wishes to perform inspections.	Registered Design Professional (licensed architect or engineer) with Virginia Dept of Housing and Community Development certifications, plus ICC and NCPCCI exams or ICC credentials. Required exams depend on type of inspections to be performed.
Filing Requirements	Forms filed at municipal level at plan review phase; none at site inspection	Inspection results sent to Department of State prior to the issuance of a	Forms submitted to the local building official prior to issuance of a certificate of	If construction documents reviewed by independent party, report provided to

	Washington State	New York State	Maine	Fairfax County, Virginia
	phase.	certificate of occupancy.	occupancy.	local building official prior to issuance of a permit. "Third-party inspection" reports (at the construction phase) are submitted to the Commercial Inspections Division, along with "completion statement" at end of construction. One copy must be left on site.
Oversight	Washington Association of Building Officials oversees third-party inspector program, but code enforcement power rests with local jurisdiction.	Overseen by municipality, though they can pass responsibility up to the county. County can in turn pass it up to the state. State can step in under other circumstances but generally only does so in cases of extreme lack of enforcement.	Certification process overseen by State Planning Office, which maintains a list of certified third-party inspectors that municipalities can employ.	Commercial Inspections Division oversees third-party inspectors, must pre-approve scope of inspection on a project-by-project basis and approve all inspection reports after completion.
Enforcement Mechanism	Pre-requisite for certificate of occupancy; exact mechanism varies by jurisdiction	Ability to issue stop-work and not-be-occupied orders; pre-requisite to certificate of occupancy	Inspection a pre-requisite to certificate of occupancy. Inspection by third-party one option for meeting requirement.	Violations must be corrected prior to proceeding with work; final approval required prior to occupancy
Quality Assurance	No formal ongoing quality assurance, but compliance study was conducted that included examination of effectiveness of	Continuing education requirement of minimum 24 hours annual in-service training (including minimum one hour in each of seven	District Court may revoke certification if inspector has failed to act with reasonable care or judgment or failed to apply	Commercial Inspections Division monitors the quality of certified inspections through pre- and post-approval process.

	Washington State	New York State	Maine	Fairfax County, Virginia
	third-party program. Study found higher-than-average compliance rates overall when third-party inspectors used.	topic areas), served quality assurance function. No formal quality assurance checks.	training. Court can also revoke for incompetence, deception or fraud.	
Conflicts of Interest	No prohibition. Many large architectural/engineering firms had third-party inspectors on staff. Study found one possible example where this may have led to an issue of code bending, but also found high compliance rates at firms with in-house inspectors.	No prohibition. Large firms employ in-house third-party inspectors.	Third-party inspector must not hold direct or indirect pecuniary interest in any building for which inspector issues a report and may not be appointed as a building official. (The code is unclear as to any limitations on this latter restriction.)	Third-party inspectors must be “independent of the contractors performing the work” and must have no personal financial interest in the project.
Evaluation	Overall, study found over 80 percent compliance among buildings that had been reviewed by third-party inspectors, or about 30 percent higher than sample overall. Without these buildings, compliance rate same as earlier study.	Evaluation pending	None	Evaluation pending

Discussion:

- **Scope:** The four locations varied with regard to the scope of their third-party inspection systems, including whether inspectors were used only for one sector or all building types, whether they were responsible for just the energy code or the building code overall, and whether they were engaged in plan reviews and/or site inspections. Interviewees expressed differing opinions as to whether third-party inspectors should be used just for the energy code or for all code inspections. Former Washington program officials felt that having the inspectors review just the energy code ensured that this code would receive adequate attention, thereby avoiding its de-prioritization. On the other hand, a former building official in New York whose present firm provided inspections felt that because the various codes overlapped and impacted each other, separate inspections might lead to conflicting corrective actions.
- **Funding:** The programs also relied upon different options in terms of funding, though in general most involved at least some cost to the builder/owner either through a direct contractual arrangement with the inspector or a permit application fee. Washington State was the only program in which utility ratepayer funds were used to reimburse the builder/owner. Interestingly, former officials of the program expressed the opinion that this reimbursement mechanism was politically important with regard to generating buy-in to the program before it was established, but they also noted that many owner/builders did not actually apply for the reimbursement. They suggested that in most commercial projects, the code inspector costs were low enough relative to the large building budgets that the hassle of applying for the reimbursement outweighed its monetary value. Indeed, the formal study evaluating the program found that a large majority of officials from building departments that used special inspectors⁸ either felt that phasing out the reimbursements would have only a neutral effect on the program or were unsure what the effect might be. Only one felt there would be a major negative effect. Even the special inspectors themselves who were interviewed were evenly split on whether phasing out the reimbursements would have a negative effect. On the other hand, one of the former officials interviewed suggested that setting the reimbursement rate at a flat \$900 might not go over well in other contexts, particularly since the actual cost of the inspection was negotiated between the builder/owner and the inspector.
- **Certification Requirements:** Each jurisdiction has a slightly different set of program certification requirements. The three states in the sample each provided a training course and an exam, while in the Fairfax County system, Registered Design Professionals were required to have received certain state and industry certifications. Several of these programs raise the point that training programs can be established which break down the training requirements into levels of complexity or different subject areas, depending the type of inspections a candidate will perform, rather than enforcing uniform requirements for all inspectors. In addition, some

⁸ “Special inspector” is a term generally accepted in building and energy codes used to refer to third-party inspectors. This was the term used in the Washington program.

programs such as New York permitted licensed architects and professional engineers to waive out of these requirements by demonstrating relevant experience. Finally, the continuing education requirement incorporated into some of these programs may serve to reinforce the importance of the energy code on an ongoing basis while also keeping inspectors up to date on code changes and industry practices.

- **Filing Requirements**: Typically forms were required to be filed at the municipal or state level. In Fairfax County, inspectors were also required to leave inspection reports on-site. Former officials in Washington State indicated that having the forms filed at the municipal level had made it more difficult to track statewide compliance on an ongoing basis, although a sampling study helped to address this issue. In addition, the extent to which filing was used as a quality assurance mechanism seemed to vary by location. In New York, for example, one interviewee noted that inspectors sometimes filled out all of the required filings, including required approvals based on the inspections, and left only the signature line for the municipalities. In Fairfax County, on the other hand, oversight of required filings by the jurisdiction was fairly extensive, requiring government approval of inspection scopes of work before they took place. In this jurisdiction, oversight of inspector filings was also intended to serve as quality assurance mechanism.
- **Oversight**: Each location reviewed maintained a different solution in terms of oversight of their third-party inspector program. Washington State’s oversight structure was the most complex, with the building officials’ association overseeing the inspector program, a separate nonprofit established by the utilities providing training, and coordination with local jurisdictions—who maintained enforcement authority—through the Association of Washington Cities. Despite this complexity, the formal program evaluation reported that coordination was relatively smooth, suggesting that even complex systems can work if the climate is right. The New York model offered an interesting example of an “opt out” system in which local jurisdictions were given primary responsibility for code enforcement, but that responsibility could be voluntarily passed up the chain to the county or state level. Such an opt-out could potentially help overcome local jurisdiction objections of being required to enforce an unfunded mandate. An alternative in Maine was to exempt all towns with fewer than 5,000 residents from any code compliance requirements. By contrast, Fairfax County intentionally designed a system with extensive oversight by the Commercial Inspections Division.
- **Enforcement Mechanism**: Whereas the inspection models varied along many other dimensions, when it came to the enforcement mechanism, the method chosen by all jurisdictions researched was to require an inspection prior to the issuance of a certificate of occupancy. The New York rules specified that inspectors could issue stop work orders and “not-be-occupied” orders. In Fairfax, the rules were explicit that violations must be corrected prior to proceeding with any other work.

- **Quality Assurance**: Each location took a different approach to quality assurance, highlighting the range of options that can be used to ensure that inspectors perform quality work with effective results. As a starting point, as discussed above, all jurisdictions implemented a certification process designed to ensure that inspectors had reached a minimum competency level either through training and examination or some equivalent. New York went beyond this requirement by adding an annual in-service training requirement to ensure continuing competency. In terms of actual checks of the inspectors' work, Fairfax took a hands-on approach through its pre and post approval process, while in Maine the courts were given authority to revoke an inspector's certification. In Washington, while there was no formal ongoing compliance, the evaluation study specifically examined the effectiveness of the third-party inspector system.
- **Conflicts of Interest**: Locations differed regarding their conflict of interest rules. Two of the locations reviewed permitted firms to employ in-house inspectors that could approve their own work, while two prohibited inspectors from having any financial interest in the buildings they were inspecting. In addition, in Maine, where third-party inspectors were barred from having any financial interest in their inspected buildings, they were also barred from being appointed as building officials. It was unclear whether any limitations existed on this second restriction. While the separation between inspectors and the buildings they inspect is a logical step, the Washington study found that firms that employed in-house inspectors who could review their own firms' work tended to have exceptionally high compliance rates. Indeed, the study found that although inspectors were often hired as a result of requirements in one or a few local jurisdictions, once employed they tended to review every project for compliance regardless of jurisdictional requirements.
- **Evaluation**: Of the four jurisdictions studied, only Washington State had conducted a formal evaluation of its third-party inspector program, although interviewees indicated that evaluations were pending in Fairfax and New York. The results from the Washington evaluation were positive, noting 80 percent compliance among those buildings that had been reviewed by a third-party inspector, compared to only 50 percent compliance among the sample overall. This evaluation was conducted after an earlier study showing that buildings in Washington complied with the state energy code at only a 50 percent level overall. The later study noted that the overall compliance rate remained the same when the buildings that had been reviewed by third-party inspectors were taken out. It should be noted, however, that this constituted only 12 buildings out of a sample of 88, so the statistical significance of the findings are perhaps less robust than they would be with a larger sample.

Appendix A: Program Narratives

Washington State⁹

The Washington State “Special Plan Examiner/Inspector” (SPE/I) program was created in 1994 after the adoption of a new commercial energy code. The plan was based on Section 1704 of the International Building Code, which provides model language for third-party inspection programs. The Washington program focused on commercial inspections, allowing third parties both to review plans and conduct on-site inspections. The inspectors specialized in energy code compliance and focused their work only on the energy code. Many of the inspectors were small firms that made this line of work their sole business, while a few were part of larger firms that were looking for ways to expand.

The program was funded by the state’s utilities, which jointly created a nonprofit organization known as the Utility Code Group (UGC) to provide training on the energy code to the building industry, including third-party inspectors. The SPE/I program was administered by the Washington Association of Building Officials (WABO), which administered certification exams and maintained a list of certified inspectors, though the local jurisdictions retained code enforcement authority. Coordination with the local jurisdictions was carried out in partnership with the Association of Washington Cities (AWC).

Inspections under the program were arranged through a direct contract between the permit applicant and the inspector. The price for the inspection was negotiated between the inspector and the applicant, though there was a fixed \$900 rebate available from a utility-backed fund that the applicant could apply for after the inspection was completed. Establishment of the rebate was an important aspect of generating buy-in to the program prior to its implementation. Once the program was up and running, however, applicants frequently declined to seek the rebate, typically because the cost of the inspection was fairly small compared to the overall costs of most commercial projects.

At the plan review phase, there was a standard set of forms developed by an energy consulting group that the special inspector would give to the permit holder, who would send them back to the jurisdiction. There was no filing requirement at the site inspection phase. There was also no filing requirement at the state level, which has made it more difficult to track compliance rates statewide. However, a sampling was done toward the end of the program that showed a 30 percent improvement in code compliance where third-party inspectors were used.

Despite this success, the Washington State program was phased out in 1997. Former program officials interviewed indicated that this phase-out was part of a much broader and somewhat unrelated political process.

⁹ The information in this section is based on conversations with Chuck Murray, Washington Department of Commerce (chuck.murray@commerce.wa.gov), and Stan Price, former Assistant Director of the Washington State Energy Office (stan@putnamprice.com), as well as the document, “Compliance with the 1994 Washington State Nonresidential energy Code (NREC),” Ecotope, 1997, <http://www.aceee.org/proceedings-paper/ss98/panel04/paper23>

New York¹⁰

In New York, third-party inspectors focus not just on energy codes, but all types of code compliance. They can be used for both residential and commercial inspections, at the plan review and/or the on-site inspection phases. Under New York state law, the manner in which they are used is up to the discretion of the municipality.

To be qualified, inspectors must attend a training class, pass an exam, and complete 24 hours per year of continuing education. Qualified professional engineers can be exempted from these requirements. Some third-party inspectors make this their primary line of work, while others are part of larger firms.

The price for the inspection varies wide depending on the type of building. The inspectors are paid by the municipality, but typically this cost is passed onto permit applicants in the form of fees.

The municipality also has oversight authority over the inspectors, and at times municipalities that have some of their own inspectors on staff will report informally to the building official if they notice issues with third-party inspection work. On the other hand, the municipality can choose to pass their authority up to the county, which in turn can pass it up to the state. The state can also step in if there are questions about inspection work in a particular municipality, but such situations are unusual.

Compliance forms must be signed off on by the municipality prior to the inspection, though the inspector can fill out the form (except for the signature) on the municipality's behalf.

In addition, in New York renovation is covered by the energy code, to the extent that any new systems or materials are installed. Any systems or materials that are not part of the renovation can remain intact.

Maine¹¹

Although the Washington program was phased out some time ago, more recently Maine established a framework for third-party inspection that was based on the Washington program, although the Maine program applies to the entire Maine Uniform Building and Energy Code (MUBEC), which extends beyond energy efficiency alone. The program is not yet fully up and running, and interviewees indicated there has been some political resistance to full implementation of the energy code overall. As part of that political process, towns under 5,000 residents have been exempted from MUBEC compliance requirements. Nevertheless, the implementation model has been established and some training of third-party inspectors has taken place.

¹⁰ Much of this information is based on a conversation with New York State certified code enforcement official and former Building Department Director for the Town of Perinton, Scott Copp (Scott.Copp@tylin.com), whose firm, T.Y. Lin, provides third-party inspections along with full-service engineering and architectural services.

¹¹ Much of the information in this section is taken directly from "Frequently Asked Questions: Certification Standards for Third-Party Inspectors," available at http://www.maine.gov/spo/ceo/documents/TPI_FAQ.pdf. Some information was also based on a conversation with Doug Baston, President, North Atlantic Energy Advisors (dcbaston@northatlanticenergy.com).

Under the Maine program, third-party inspectors can be hired by municipalities to perform inspections in lieu of the municipal building inspector. Alternatively, they may be hired directly by the building owner. Municipalities have the option of opting out of the program and ensuring code compliance by keeping their own code enforcement officers on staff.

In order to become certified, third-party inspectors must take a series of basic training courses provided by the State Planning Office and pass an examination. The series is broken down so that inspectors can be trained only in those areas in which they plan to conduct inspections. These include separate courses on the residential building code, the commercial building code, the residential energy code, the commercial energy code, an indoor radon course, and courses on residential and commercial ventilation. Each one has a separate exam, and some continuing education is required. Inspectors can submit a national certification substitute to the Planning Office for a determination of equivalency. The Planning Office maintains a list of qualified inspectors on its website.

Assuming the program is fully implemented, inspectors will be required to conduct on-site inspections and submit their reviews to the local building official prior to the issuance of a certificate of occupancy.

Fairfax County, Virginia¹²

The Certified Inspections Program offers property owners and construction contractors of commercial construction projects the option for certain construction inspections to be performed and certified by private sector “third-party” engineers and inspectors, to the extent specified below, when approved in advance.¹³ The Commercial Inspections Division will accept, review and approve such certified inspections, in lieu of inspections by Commercial Inspections Division staff, except in situations where there is specific cause that a particular report shall be rejected. The Commercial Inspections Division will monitor the quality of the certified inspections. The Commercial Inspections Division staff will continue to provide full support to inspection requests for projects not involved in this certified inspections program.

Private sector “third-party” inspection firms and personnel shall be employed directly by the project owner, be independent of the contractors performing the work, and have no personal financial interest in the project. Both the inspection firm and its personnel shall be approved by the building official on a project-by-project basis prior to commencement of construction.

Inspections shall be conducted under the direct supervision of, and certified by, a Registered Design Professional licensed in the commonwealth of Virginia. The Registered Design Professional and Registered Design Professional’s field inspector personnel shall all possess appropriate commonwealth

¹² This information is taken directly from the document “Certified (Third Party) Inspection Program: Implementation in Fairfax County, 2008 Edition,”

<http://www.eereblogs.energy.gov/tap/file.axd?file=2011%2F9%2FFairfax+County+VA+-+3rd+party+inspection.pdf>

¹³ The types of inspections permitted under this program include both energy and non-energy elements. Four types of inspections are permitted, with different certification requirements for each type: building inspections, mechanical inspections, electrical inspections, and plumbing inspections. Mechanical inspections include energy-related elements such as insulation and energy conservation material, as well as ductwork, heating, ventilation and air conditioning.

of Virginia or International Code Council, Inc. (ICC) inspector credentials. An inspector or Registered Design Professional approving work that is not in conformance with Fairfax County-approved plans and the Virginia Construction Code may lose Fairfax County approval to perform future inspections.

The proposed scope of certified inspections, and the Registered Design Professional and Registered Design Professional's field inspector personnel to be responsible for those inspections, shall be approved in writing by the Building Official on a project-by-project basis prior to conducting inspections.

Each Registered Design Professional and all Registered Design Professional field personnel (each inspector) shall possess appropriate Virginia Department of Housing and Community Development certifications (Core module, Advanced modules, and NCPCCI or ICC examinations) or shall possess appropriate ICC certifications (ICC examinations), and shall attend periodic code update training as directed by the Virginia Department of Housing and Community Development.

If the inspection results in rejection, deficiencies and reasons for rejection shall be clearly identified by appropriate code sections/referenced standards, and shall be reported to the general contractor superintendent for correction. Items rejected, or any code violations discovered by a third-party inspector or Fairfax County staff, shall be corrected and re-inspected prior to proceeding with the work. Where appropriate, photographs should be attached.

The inspector shall leave one copy of the written inspection report on the job site at the time of inspection, and shall annotate and sign the Fairfax County-approved construction documents on the job site to identify the areas/locations/floors inspected, inspection date, type of inspection and the results of inspection.

All inspection reports shall then be signed and sealed by the Registered Design Professional, and shall be submitted by the end of the next business day following each inspection, in the manner agreed by the Building Official, to the Commercial Inspections Division contact person for review and entry into the Fairfax County inspection records.

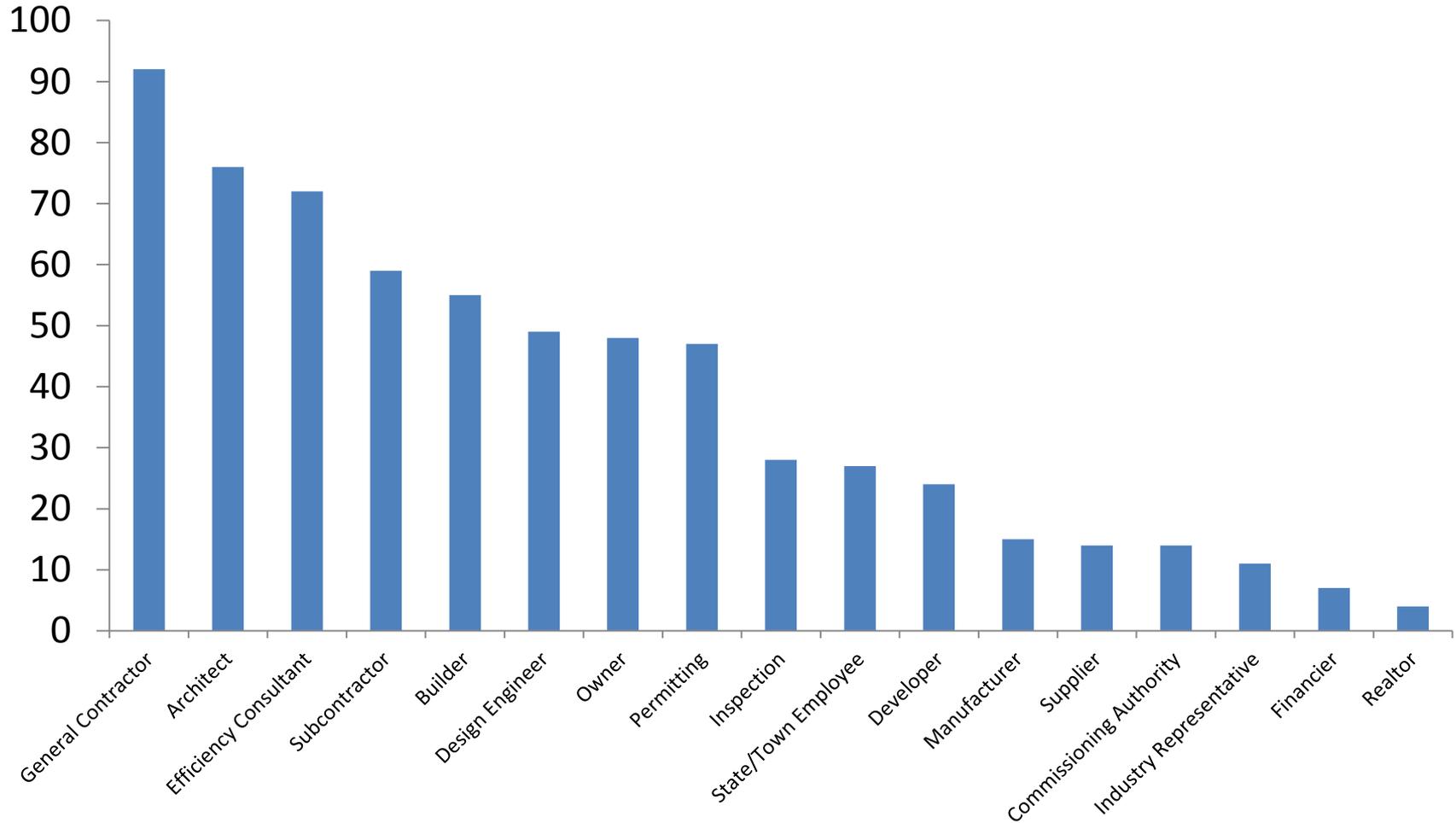
Approval of the completion statement is required prior to final inspections or occupancy.



VERMONT ENERGY CODES COMPLIANCE PROJECT

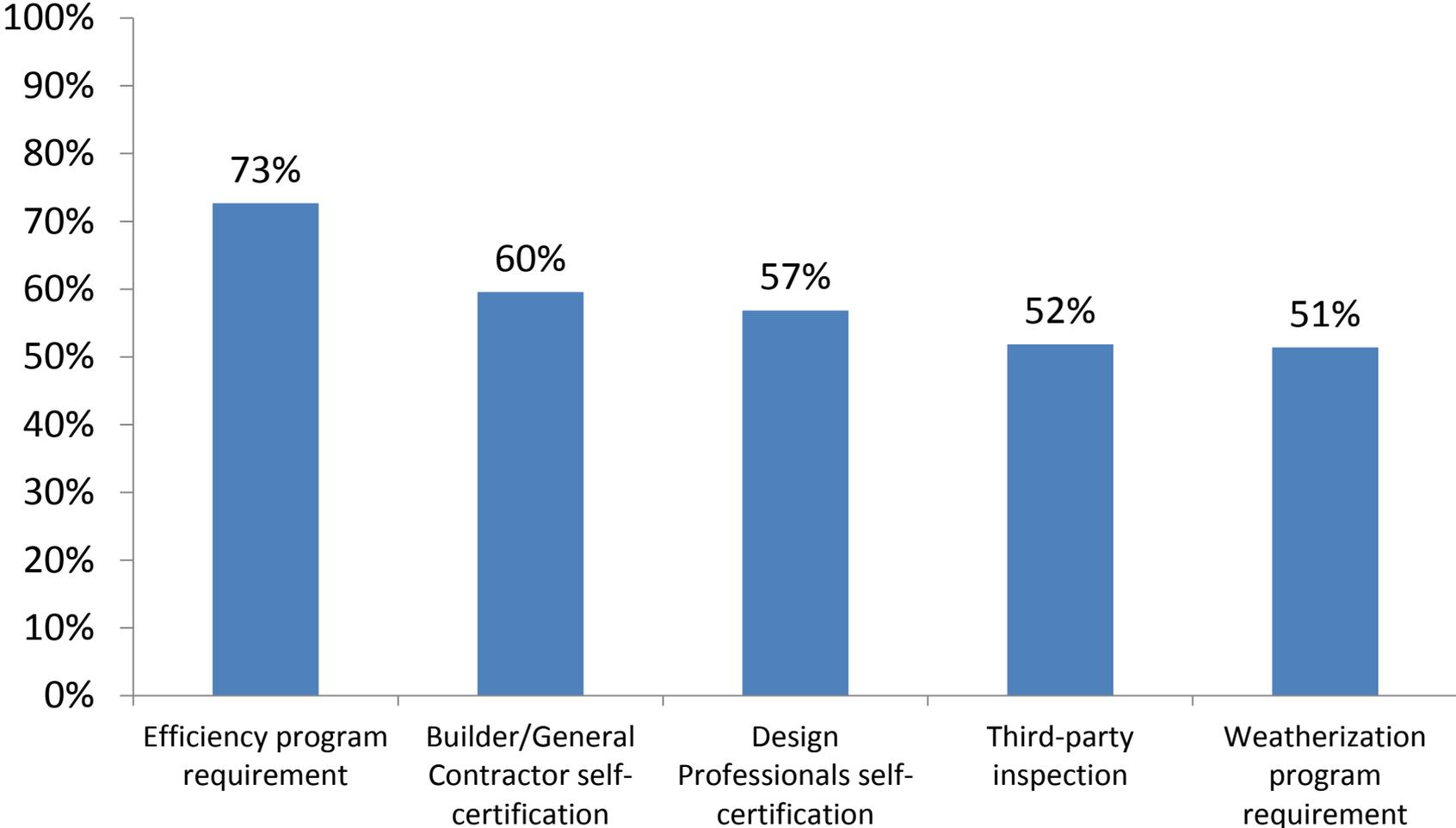
Final Stakeholder Survey Results

Survey Respondents by Profession*



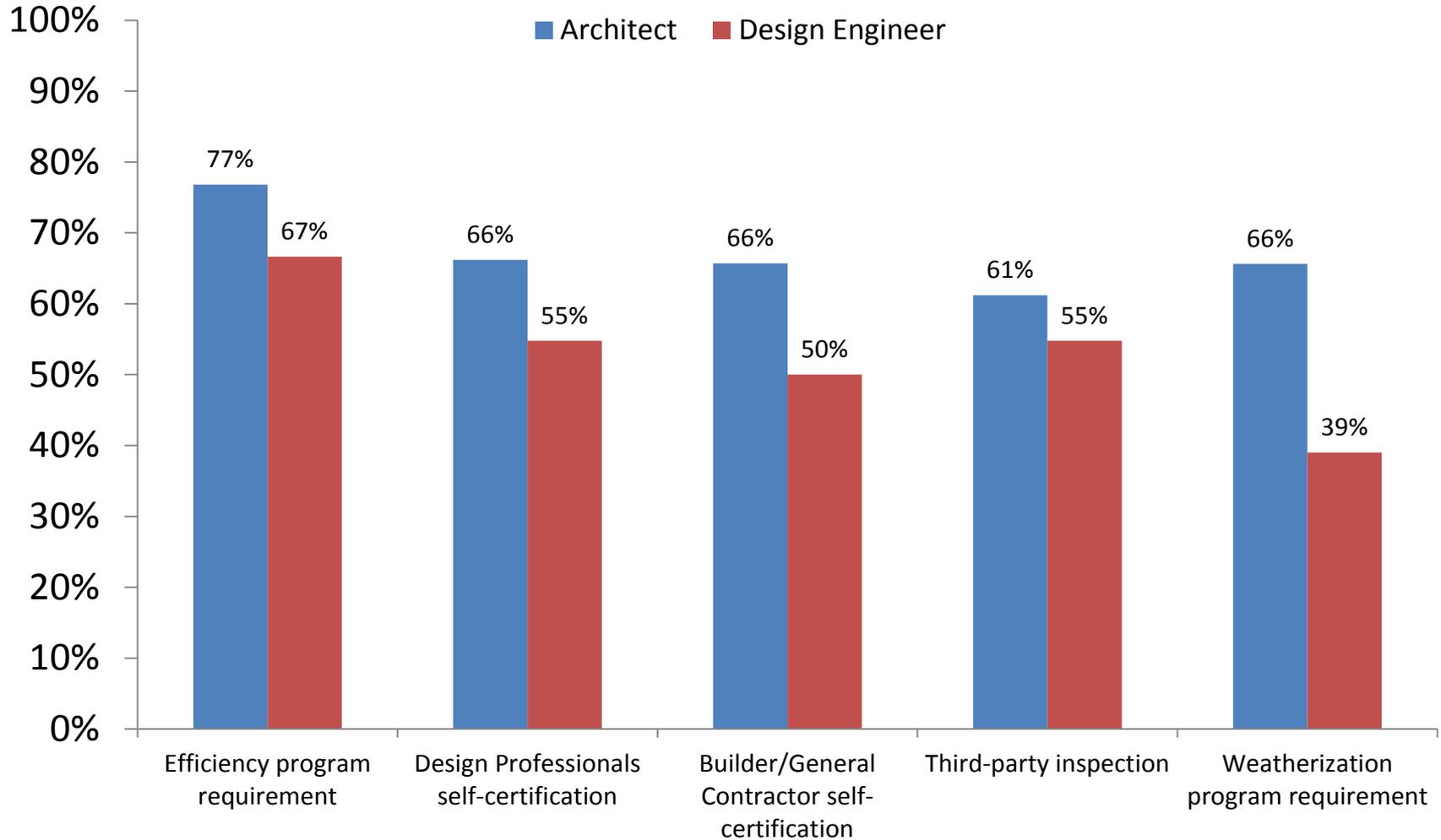
*Numerical count (not percent). Respondents could check all that applied.

Favorability of Compliance Options*



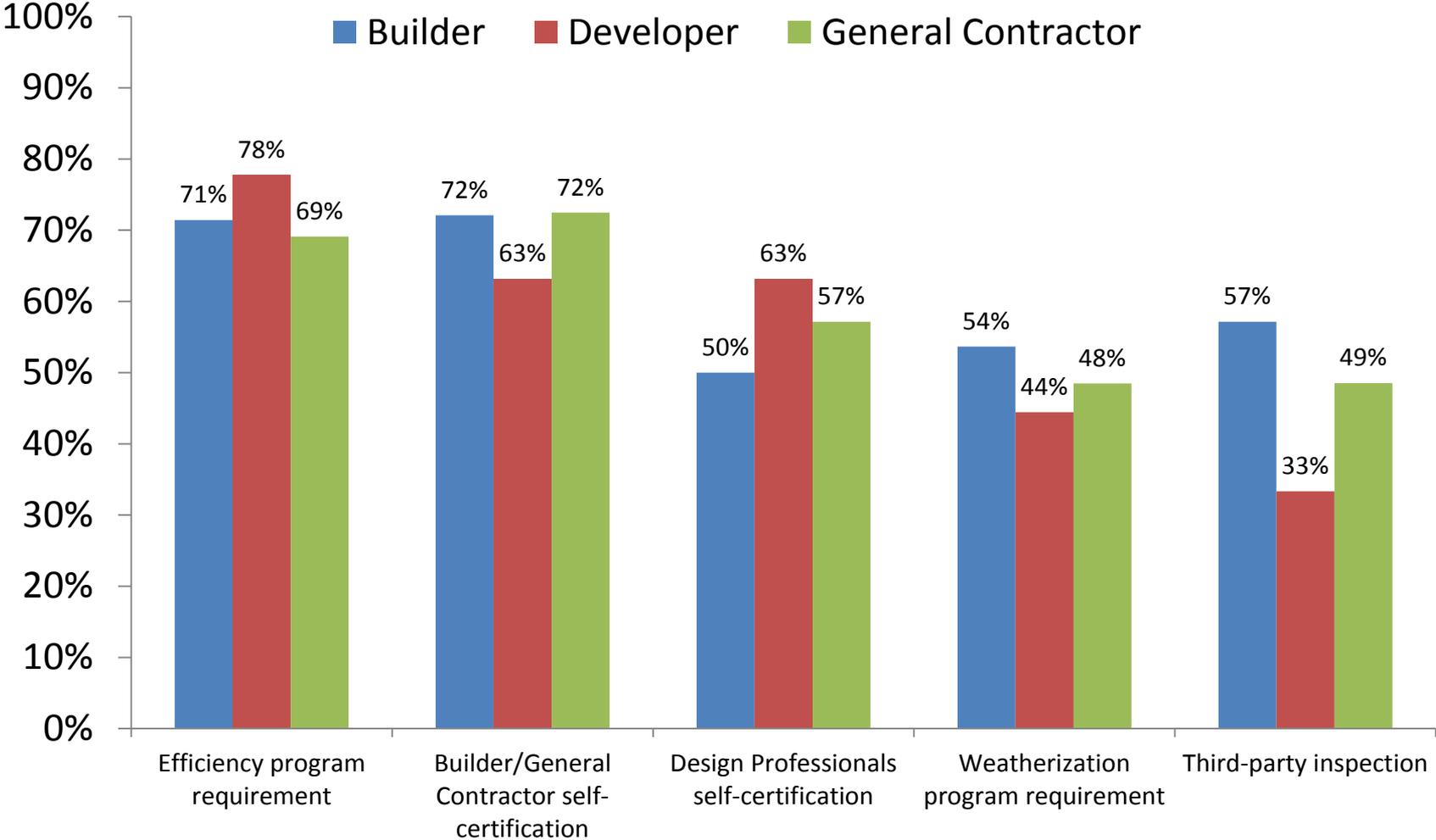
*Percent of respondents overall who would be somewhat or very satisfied with this option.

Compliance Options: Designer Reactions*



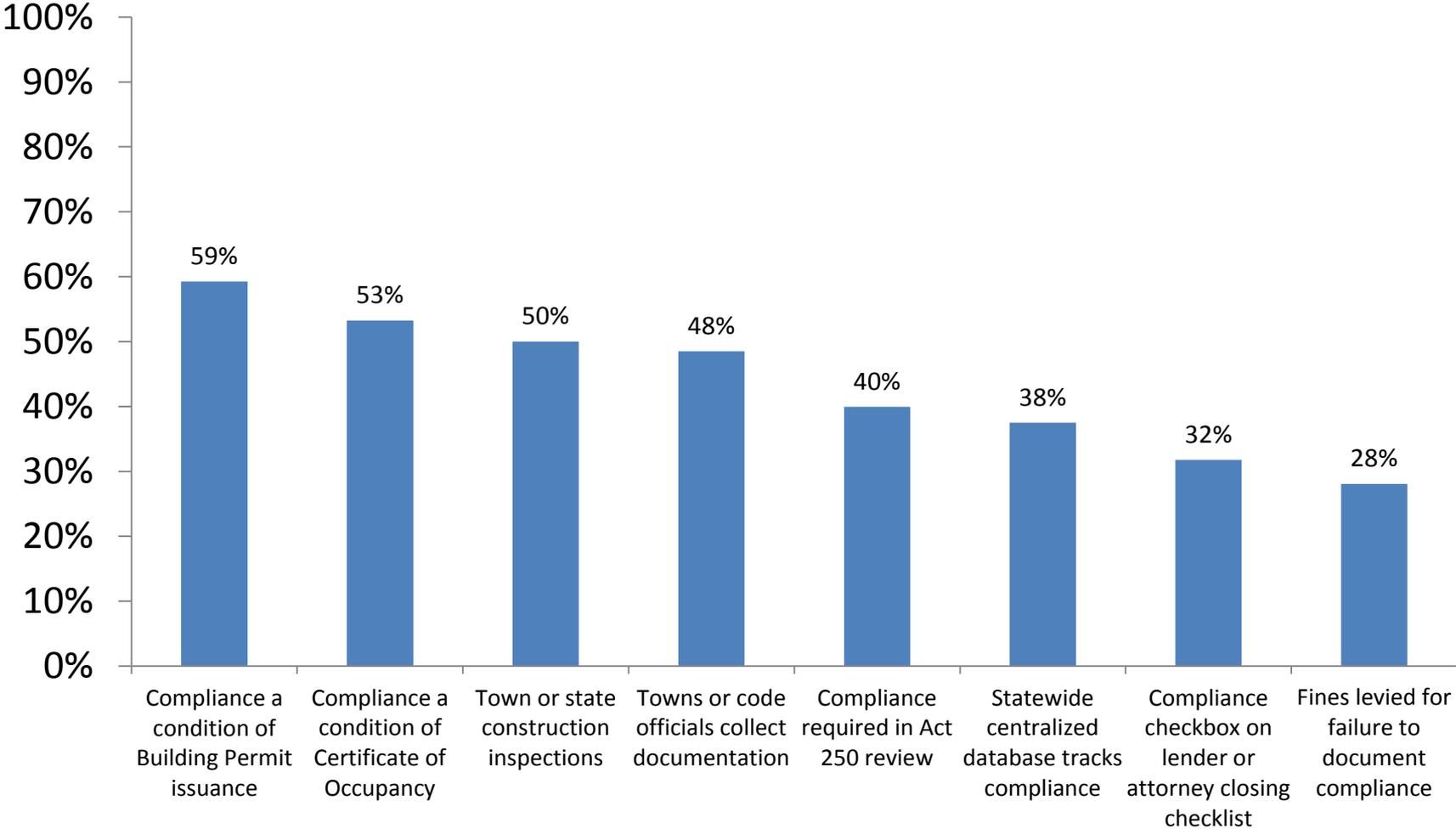
*Percent of respondents in these categories who would be somewhat or very satisfied with this option.

Compliance Options: Builder Reactions*



*Percent of respondents in these categories who would be somewhat or very satisfied with this option.

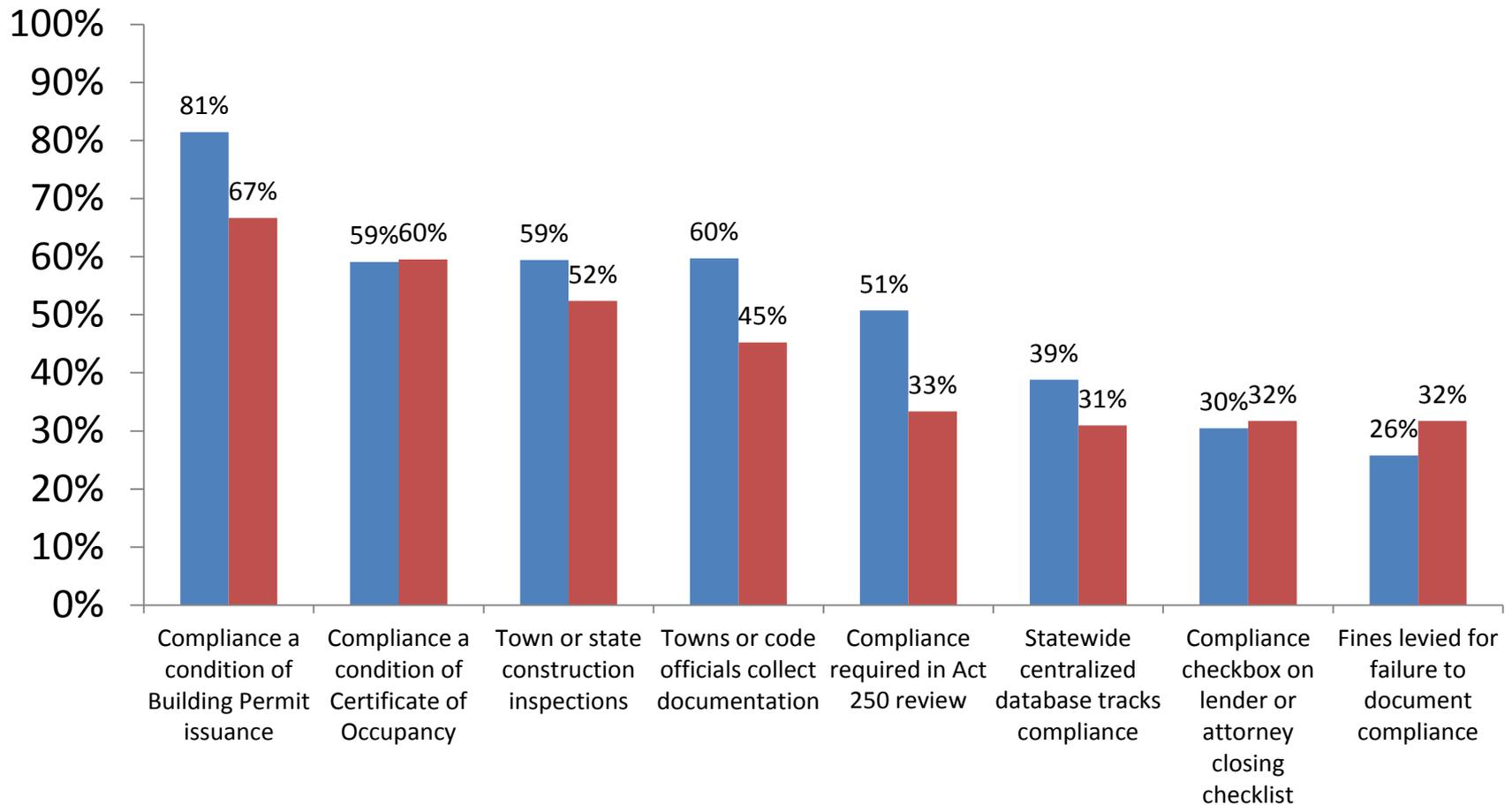
Favorability of Enforcement Options*



*Percent of respondents overall who would be somewhat or very satisfied with this option.

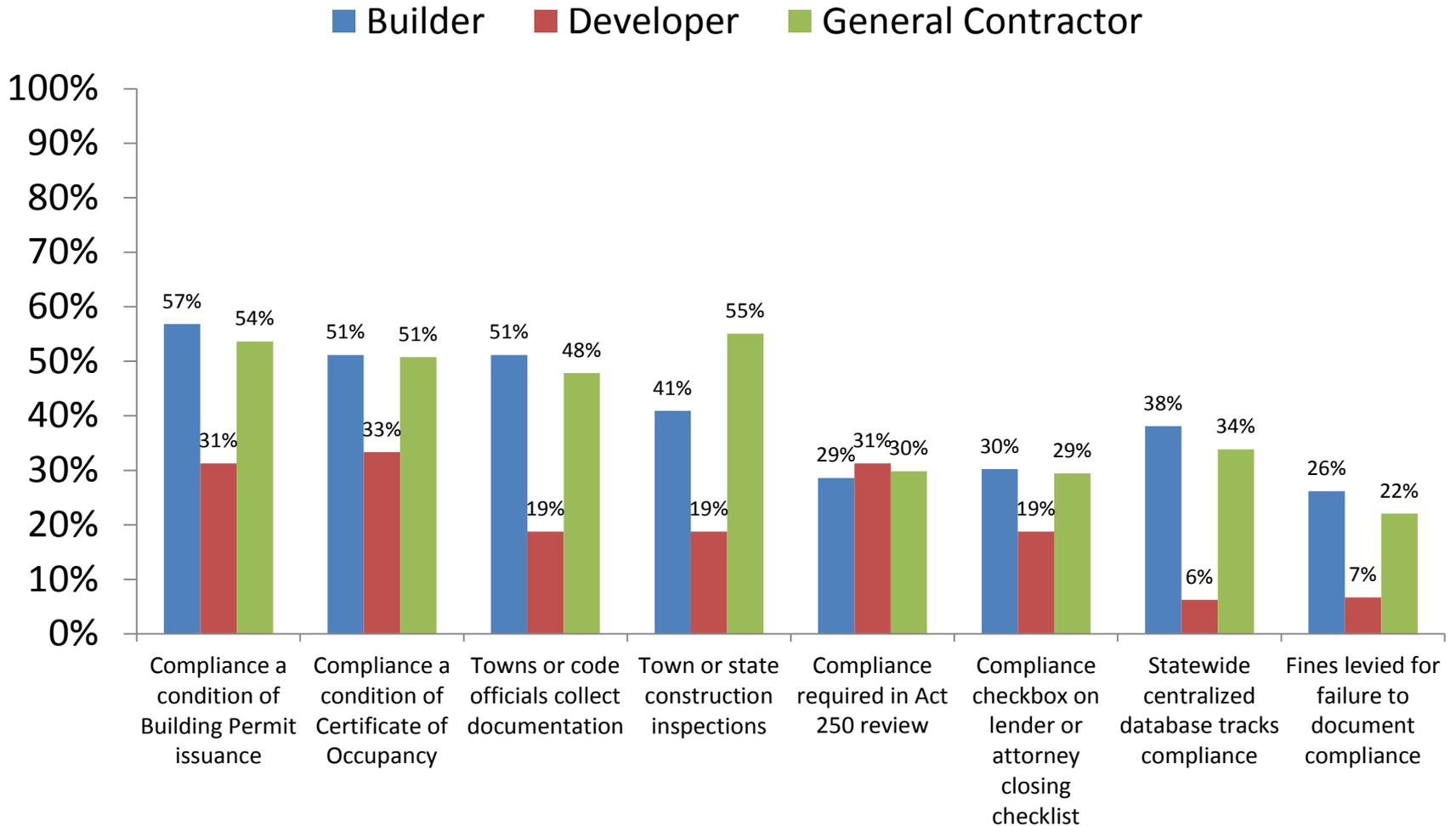
Enforcement Options: Designer Reactions*

Architects Design Engineers



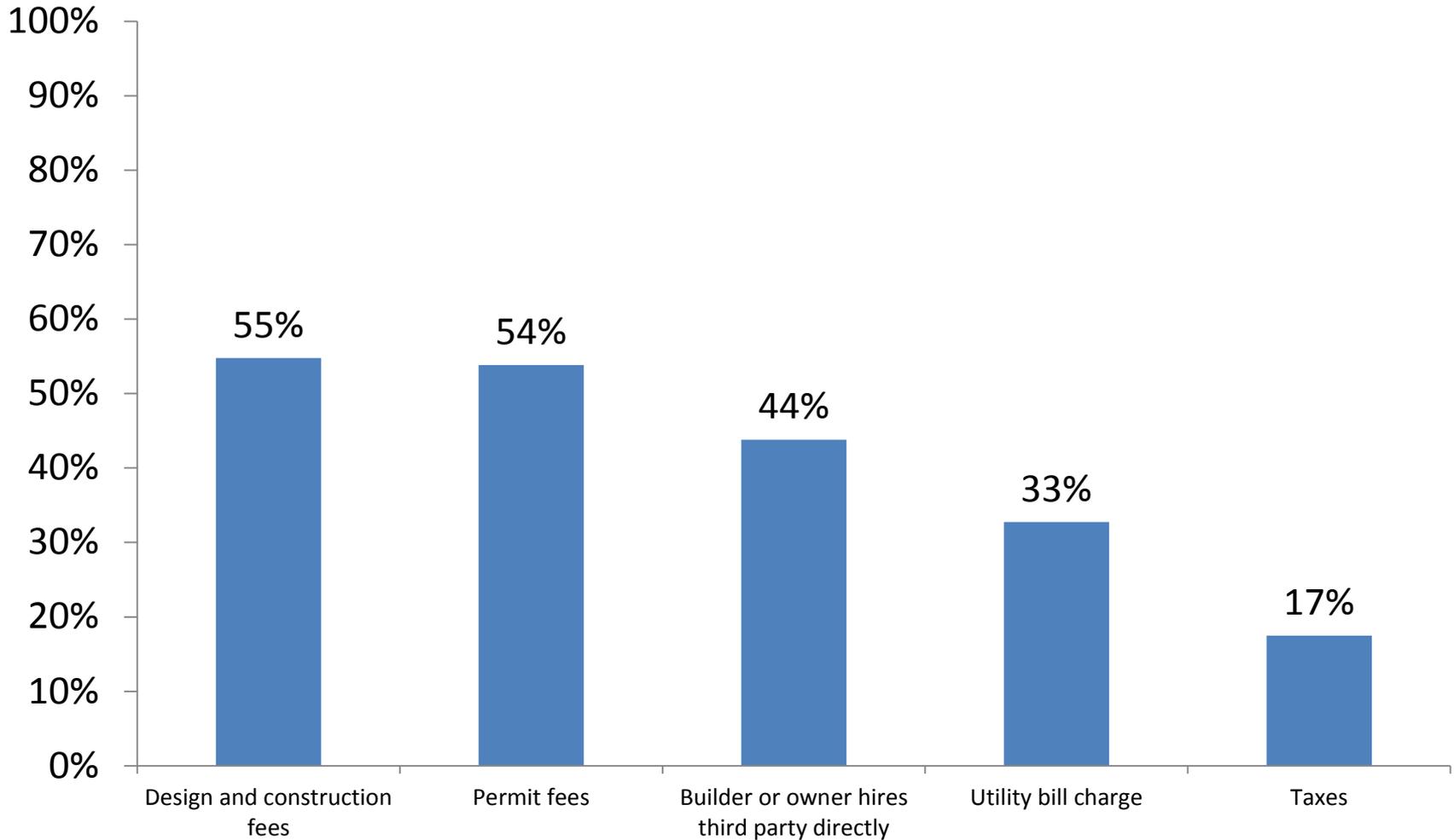
*Percent of respondents in these categories who would be somewhat or very satisfied with this option.

Enforcement Options: Builder Reactions*



*Percent of respondents in these categories who would be somewhat or very satisfied with this option.

Favorability of Funding Options*



*Percent of respondents overall who would be somewhat or very satisfied with this option.