STATEWIDE C&S PROGRAM
COMPLIANCE IMPROVEMENT
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Standardize Over-the-Counter Building Permit Requirements

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TABLE OF CONTENTS

PROBLEM STATEMENT

A commonly stated problem among contractors when obtaining building permits is that it is difficult to know 1) exactly what information is needed by the building department, and 2) when or if a permit is required. It is also difficult to estimate the time it will take to pull a permit since in many jurisdictions even simple projects may require following a multistep process.

This confusion is common with permits issued over-the-counter[1] for alterations. Over-the-counter permits are typically issued for reroofing, window replacement, water heater replacement, insulation upgrades and HVAC change-outs. With over 500 different building departments in California, the time and expense required for contractors to navigate the various requirements of each building department can be excessive and lead to compliance avoidance. In some cases the time it takes to gather the required information, complete the compliance documentation and acquire a permit is more time consuming than the project itself.

Additionally, specific energy standard requirements triggered by over-the-counter permit activity are inconsistent from building department to building department, due to variances in the code. Some jurisdictions don't require compliance documentation for over-the-counter permits; there is even more inconsistency as to which types of projects require a permit at all. Even when permits are required and documentation is in place, in some cases the lack of adequate information makes it difficult for building inspectors to verify if energy code compliance is achieved. This inconsistency and confusion has also contributed to the compliance avoidance problem with many of the types of building alterations listed above.

This paper explores the value of standardized documentation requirements for over-the-counter types of permits that trigger Title 24. It also explores identifying the minimum information consistently required to adequately verify compliance with the Standards for typical over the counter permits. Providing a means for contractors to see essentially the same documentation requirements wherever they work in California, reduces confusion and mixed messages. It may effectively decrease the amount of time it takes to pull a permit. Standardization will also allow plan checkers

[1] Over-the-counter permits refer to those permits that do not require a dedicated plan check but can be issued at the same time the application is filed, typically due to the simplicity of the scope of work.

and building inspectors to have adequate project information to determine energy code compliance.

PROOF THE PROBLEM EXISTS

It is the belief of the writing team that these issues are common among contractors and building departments. As early as the 1995 code, studies assert that confusion and inconsistency in the interpretation of code contribute to noncompliance rates[2]. To provide more objective, empirical proof a dedicated telephone survey could be developed and distributed for this specific purpose:

- Interview/survey contractors (general and sub-trades)
    - Interview/survey questions could include:
        - For what types of alterations do you commonly pull permits? (e.g., re-roofing, window replacement, water heater replacement, insulation upgrades and HVAC change-outs…)
        - Do the jurisdictions where you regularly work require a permit for these types of alterations? If so, which ones?
        - Do you regularly pull permits for building alterations in multiple jurisdictions? If so, approx. how many different jurisdictions?
        - For the type(s) of alterations you perform, which require Title 24 documentation (prescriptive or performance)?
        - For this type of permit, approximately how much time does it take to acquire a permit (from start to permit in hand)?
- Interview/survey building officials, plan checkers and/or building inspectors
    - Interview questions could include:
        - For which types of building alterations do you require a permit? (e.g., re-roofing, window replacement, water heater replacement, insulation upgrades and HVAC change-outs)
        - Of the alterations for which you require a permit, which ones are available “over-the-counter”.
        - Of the alterations for which you require a permit, do you require Title 24 compliance documentation (prescriptive or performance)?

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[2] Quantec, LLD, “Statewide Codes and Standards Market Adoption and Noncompliance Rates”, 1997

POTENTIAL SOLUTIONS

All solutions involve collaboration and consensus on a number of items that, for many years, have not required collaboration. For example, decisions about when to require a permit are, in part, political decisions. There is a lot of political pressure for building departments to remove roadblocks to development. The consequence is that many types of permits are handled by permit technicians who have little or no technical expertise. To address the problem would include:

- Identify and outline common over-the-counter alteration scenarios that trigger Title 24 compliance.

Most building departments issue permits for similar activities but may have them characterized differently. For example, some jurisdictions may call a commercial HVAC installation during a tenant improvement an alteration, some a mechanical permit and some a mechanical alteration. Other naming conventions may be used. However, the actual activity that takes place as a result of the permit being issued is the same, in this case a rooftop unit changed on a retail tenant improvement. So mapping these common activities to their relative name throughout the state would be an important first step.

- Identify and outline the minimum project information required for energy code compliance.

In some cases it is unclear, particularly for alterations, if the CF1R-ALT is required. For example, if an applicant is interested in replacing one or two windows on their home and it is a 'like for like' replacement, how is it determined whether or not any formwork is required? Even if the square footage affected triggers the requirements, many building departments don't see the value in requiring a five page form for something as simple as documenting window performance values.

- Research ways to apply for and pull a permit remotely.

In many cases the simpler permits are where the largest savings potential is, because of the volume of work in existing buildings versus new construction. These projects are typically completed on a short schedule, one or two days. There is not normally time built into the schedule to pull a permit or research code requirements. A web-enabled, integrated system that contains the building department reference information and automates the energy efficiency components will enable contractors to spend less time obtaining permits.

IMPACT ON COMPLIANCE

- Will standardized over-the-counter permits increase energy code compliance?

As the code becomes more stringent, the net effect is:

- Scope expansion and customization. With each code cycle, the types of construction activity impacted as well as the particular triggers expand. For example, in the 2008 code you may install R30 in the attic in lieu of installing a cool roof. This illustrates how another trade may need to become involved.
- Requirement customization with each code cycle, as new products become cost effective, those products become required for code. In addition, performance incrementally improves on existing products and those performance improvements may be adopted in one climate zone where they are cost effective and not in another where they are not. For example, a sampling of the 2008 energy code requirements for cool roofs are as follows:

Residential Cool Roof Climate Zone		**2**	**3**	**4**	**12**
Roof pitch > 2:12, if new roof material is < 5 pounds per ft²	3 year Aged Solar Reflectance, minimum	NR	NR	NR	0.20
	AND Thermal Emittance, minimum	NR	NR	NR	0.75
	OR Solar Reflective Index, minimum				16
Roof pitch > 2:12, if new roof material is ≥ 5 pounds per ft²	3 year Aged Solar Reflectance, minimum	0.15	0.15	0.15	0.15
	AND Thermal Emittance, minimum	0.75	0.75	0.75	0.75
	OR Solar Reflective Index, minimum	10	10	10	10
Low-sloped roofs (pitch ≤ 2:12)		NR	NR	NR	NR

So you can see that even within one climate zone (12) the specific emissivity, reflectance and SRI values are different for different roofing products. Next door in

another climate zone, the requirement doesn't even apply unless the density of the roof is over a certain threshold. For roofs with certain slopes, no requirements apply in any climate zone.

From this perspective it seems that standardization will be difficult, due to all the nuances in the current and future code. It is important to note that these differences are not major and can be made to seem more uniform via the automated process. For example, once a permit address is known then only three different possibilities exist:

Residential Cool Roof Climate Zone		**2**
Roof pitch > 2:12, if new roof material is < 5 pounds per ft^2	3 year Aged Solar Reflectance, minimum	**NR**
	AND Thermal Emittance, minimum	**NR**
	OR Solar Reflective Index, minimum	
Roof pitch > 2:12, if new roof material is ≥ 5 pounds per ft^2	3 year Aged Solar Reflectance, minimum	**0.15**
	AND Thermal Emittance, minimum	**0.75**
	OR Solar Reflective Index, minimum	**10**
Low-sloped roofs (pitch ≤ 2:12)		**NR**

Once the roof pitch is identified, a maximum of two possibilities exist:

Residential Cool Roof Climate Zone		**2**
Roof pitch > 2:12, if new roof material is < 5 pounds per ft^2	3 year Aged Solar Reflectance, minimum	**NR**
	AND Thermal Emittance, minimum	**NR**
	OR Solar Reflective Index, minimum	
Roof pitch > 2:12, if new roof material is ≥ 5 pounds per ft^2	3 year Aged Solar Reflectance, minimum	**0.15**
	AND Thermal Emittance, minimum	**0.75**
	OR Solar Reflective Index, minimum	**10**

Then the only question remaining is the density of the roof:

Residential Cool Roof Climate Zone		**2**
	OR Solar Reflective Index, minimum	

Roof pitch > 2:12, if new roof material is ≥ 5 pounds per ft^2	3 year Aged Solar Reflectance, minimum	**0.15**
	AND Thermal Emittance, minimum	**0.75**
	OR Solar Reflective Index, minimum	**10**

So the requirements and conditions can remain specific and somewhat detailed or complex as long as the method used for determining requirements and the documentation expectations for those requirements are uniform,

Setting proper expectations and consistently enforcing the expectations will create an environment where proper attention and credibility will be given to all code requirements. Facilitating an environment where those expectations are clear, relatively simple and easy to carry out will yield a higher frequency of conformance to the requirements. This higher frequency of conformance will improve overall compliance and help deliver the expected energy savings to the code.

- Standardized over-the-counter permits could allow contractors to see essentially the same documentation requirements wherever they work in California.
- Standardized over-the-counter permits could allow plan checkers and building inspectors to have adequate project information to determine energy code compliance
- Others?

NEXT STEPS

In order to provide standardization and simplification for the end user, several activities need to be defined and deployed, including:

- Develop recommendations base of research and findings from the survey and other sources
- Create a prototype for one over the counter scenario – window replacements or cool roofs
  - Review current over the counter permit applications from sample jurisdictions
  - Create a uniform requirement document
  - Create a prototype specification and sample process that provides uniformity
  - Pilot for proof of concept

- Survey users for satisfaction
- research and define necessary steps to integrate into an existing building department system through API(application program interface), such as Acela or CRW (iTRAKiT)
- Create report outlining next steps for implementation and expansion

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About the CIAG

The Compliance Improvement Advisory Group (CIAG) is funded by the Investor-Owned Utilities Statewide Codes and Standards Team. It supplies a "boots on the ground" perspective of current energy code compliance issues and potential solutions. This is accomplished by identifying issues, exploring potential solutions and documenting them in the form of white papers. These white papers are then used by the Investor-Owned Utility Code and Standards Team in their efforts to improve energy savings delivered from the standards.

For more information about the CIAG or to view other white papers, please visit us online at: www.caciag.com