Washington State Department of
Labor & Industries

Preliminary Cost-Benefit Analysis & Significant Legislative Rule Analysis

Chapter 296-156 WAC, Fire Resistant Materials Applicators Certification

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Chapter 1: Background

1.1 Requirements of the Administrative Procedure Act (APA)

The Administrative Procedure Act (APA; Chapter 34.05 RCW) requires that, before adopting a significant legislative rule, the Department of Labor & Industries (L&I) must analyze the probable costs and benefits of the rule, and determine that the benefits are greater than its costs, taking into account both the qualitative and quantitative benefits and costs." [RCW 34.05.328(1)(d)]
Under certain circumstances, a rule or rule component is exempt from this requirement. These exemption criteria are listed in RCW 34.05.328(5)(b) including:

- Emergency rules adopted under RCW 34.05.350;
- Rules relating only to internal governmental operations that are not subject to violation by a nongovernment party;
- Rules adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule;
- Rules that only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect;
- Rules the content of which is explicitly and specifically dictated by statute;
- Rules that set or adjust fees under the authority of RCW 19.02.075 or that set or adjust fees or rates pursuant to legislative standards, including fees set or adjusted under the authority of RCW 19.80.045.

This cost-benefit analysis has been prepared in compliance with the APA for the creation of rule sections under Chapter 296-156 WAC that do not fall under these exemptions. The Cost-Benefit Analysis and Least-Burdensome Alternative Analysis in this report are based on the best available information at the time of publication.

The APA also requires L&I to "determine, after considering alternative versions of the rule that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives" of the governing and authorizing statutes. RCW 34.05.328(1)(e).

1.2 Description of the Proposed Rule

The Washington State Legislature passed Substitute House Bill 1323 (SHB 1323), codified under chapter 49.105 RCW, during the 2023 legislative session. The bill mandates the establishment of standards for training, certification, and compliance in the application of fire-resistant materials. The goal is to enhance public safety by ensuring that individuals applying these materials are properly trained and certified, thereby reducing fire-related risks in construction. The statutory framework also ensures consistency with recognized industry standards, including those established by the International Building Code (IBC) and ASTM.

Fire protection measures are critical design elements to control the spread of fire and help protect structural steel, contain fire, and limit damage. Fire-resistant materials help protect the lives of employees that work in these buildings by providing more time for them to evacuate in case of a fire. The sufficient training of applicators and proper installation of fire-resistant materials will aid in reducing the number and severity of structural fires.

The requirements for fire resistant material applicator certification apply to fire resistant material defined under RCW 49.105.010(a) as:

- Wet or dry mix materials, cementitious materials, and fibrous materials, applied to achieve an hourly fire-resistant rating for buildings classified as construction types I, II, III, IV, and V, as defined by the international building code.
- Sealants, putty, and caulking used for firestop systems, applied to risk category III and IV buildings, as defined by the international building code.

Under the proposed rule, the following are exempt from fire resistant material applicator certification requirements:

- Applicators for firestop that do not apply in building risk categories I or II according to the International Building Code (IBC) Structural Design 1604.5 or the most currently recognized edition as adopted by the state of Washington building code council.
- Gypsum wallboard installation.
- Specialized concrete placement.
- Intumescent coatings.
- Wall, soffit or other framing of metal/steel studs or dimensional lumber.
- Buildings that fall under the International Residential Code such as single-family residences, duplexes, and townhomes.
- Company project team members such as project managers, project engineers, superintendents, fire protection engineers, architects and building inspectors, design management, contract management, or any individual not responsible for the direct application of fire-resistant materials.

This proposed rulemaking addresses the following:

- Requirements for contractors applying fire-resistant materials to use certified applicators in specified buildings. It also notes activities and building types that are exempt.
- Define key terms related to fire-resistant material application, including training providers, certified applicators, and contractors. It ensures clarity on roles, materials, and processes.
- Penalties for violations of the statute or rule.
- Certification requirements for both initial certification and renewing certification.
- Training course evaluation and approval, including course requirements, instructor qualifications, recordkeeping, and procedures for course changes and audits.
- Denial, suspension, and revocation of worker certification and training course approvals.

During the development of the rules, the Division of Occupational Safety and Health (DOSH) held small workgroup meetings with representatives of several impacted trades, as well as three larger stakeholder meetings to solicit feedback on the proposed rule.

1.3 Description of the affected Businesses and Workers

1.3.1 Affected Industries and Businesses

The proposed rule primarily impacts construction companies, contractors, and subcontractors involved in the application of fire-resistant materials. This includes businesses specializing in fireproofing, firestop systems, and structural fire protection for buildings. Businesses operating in these sectors are expected to experience the impact due to requirements to ensure all fire-resistant material is applied by a certified fire-resistant material applicator. Training providers and apprenticeship programs approved to offer fire-resistant material certification courses are also affected, as they will need to align their programs with the new standards and obtain approval from L&I.

1.3.2 Affected Individuals

The rule directly affects individuals applying fire-resistant materials, including spray fireproofing and firestop systems, in the construction industry. This includes certified applicators, apprentices, and employees transitioning into these roles. Individuals will be required to complete approved training programs and maintain certification through periodic refresher courses. The rule aims to protect public safety and limit damage to critical infrastructure by ensuring applicators are adequately trained to perform their tasks effectively and in compliance with industry standards.

Chapter 2: Costs of Proposed Rule

For this analysis, we concentrated on unit costs rather than aggregate costs. Our primary objective was to assess and present the individual cost components associated with each requirement with each occupation, in an attempt to identify specific areas of potential savings and benefits. Unit costs provide a clearer and more detailed picture of cost to those impacted rather than the potentially obscured picture of aggregated estimates. Unit costs also allow each impacted business to easily scale the probable costs and benefits in order to assess the impact to their individual operation. In this analysis, we focus only on the significant legislative changes which have either a cost or benefit impact. Other changes, whether or not determined significant, are not assessed.

2.1 Methods and Data Sources for Cost Analysis

Cost estimates are based on occupational employment and wage statistics (OEWS)[1] data from the Employment Security Department. The four occupations identified, by DOSH, as most likely to participate in the regulated activity are brick and block masons, carpenters, electricians, and heating, air conditioning, and refrigeration mechanics and installers. See Table 1.

Table 1. Most likely impacted occupations

Occupation Title	Mean hourly wage
Brick-masons and Block-masons	$43.81
Carpenters	$37.46
Electricians	$44.18
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	$36.62

2.2 Cost Estimates by Provision

2.2.1 Cost from WAC 296-156-020 Applicator Training and Certification Requirements

The cost of initial training is calculated based on the lost work hours of persons required to attend the training. Initial training for spray-on fire-resistant materials is 32 hours. Initial training for application of firestop is a 24-hour requirement. Based on their differing roles in construction, masons ($43.81), and carpenters ($37.46), are most likely to attend training for spray-on fire resistant material installation. Electricians ($44.18), and heating air conditioning and refrigeration mechanics and installers ($36.62) are most likely to attend training for firestop resistant material. See Tables 2 and 3.

[1] esd.wa.gov/jobs-and-training/labor-market-information/employment-and-wages/occupational-employment-and-wage-statistics-oews

Table 2. Cost of initial training for an individual to be certified for spray-on fire resistant materials

Specialty	Average Hourly Wage	Required Initial Training Hours	Total Initial Training Cost
Brick-and block masons	$43.81	32	$1,401.92
Carpenters	$37.46	32	$1,198.72

Table 3. Cost of initial training for an individual to be certificated for firestop fire resistant material

Specialty	Average Hourly Wage	Required Initial Training Hours	Total Initial Training Cost
Electrician	$44.18	24	$1,060.32
HVAC	$36.62	24	$878.88

Fire-resistant material applicators are required to attend refresher training every five years. The cost of refresher training is calculated based on the lost work hours of persons required to attend the training. Refresher training for spray-on fire-resistant materials is eight hours. Refresher training for application of firestop is also eight hours. Using the same mean hourly wages as above, the individual cost for refresher training would range from $585.92 to $706.88

Table 4. Cost of refresher training

Specialty	Average Hourly Wage	Required Refresher Training Hours	Total Refresher Training Cost
Brick-and block masons	$43.81	8	$350.48
Carpenters	$37.46	8	$299.68
Electrician	$44.18	8	$353.44
HVAC	$36.62	8	$292.96

In the initial year, the costs per individual seeking certification is between $899.04 and $1,413.76. Five years later, the costs per individual seeking certification is between $292.92 and $353.44 refresher training.

2.2.2 Cost from WAC 296-156-030 Training Course Approval

This section covers how training courses obtain approval from L&I, including updated approval if course materials are changed. The cost of the training is covered in sections 2.2.1 and 2.2.3. Fire-resistant material applicator training providers and courses may be sponsored by an apprenticeship program registered with the Washington State Apprenticeship and Training Council, by fire-resistant material manufacturers, or other certified training providers that have been approved by L&I. Being a course sponsor is a voluntary act and as such, there are no costs of compliance associated. The proposed rule includes requirements that approved out-of-state course providers reimburse cost for L&I staff to audit their courses if required. Potential travel costs for observation of in-state or out-of-state training courses can be avoided where observation can done via virtual means. This section sets classroom ratios, however data on class sizes in existing union and industry training is not available. Lastly the section requires standard recordkeeping requirements required by the statute. Recordkeeping is a standard requirement for apprenticeship and other training programs, while this is a new requirement, with today's electronic storage capabilities there is no foreseen cost associated with the rule

2.2.3 Cost from WAC 296-156-050 Training Course Content

Table 1 and Table 2 cover required subjects and attendance for initial and refresher trainings. Costs associated with attendance are analyzed in paragraph 2.2.1. As being a course sponsor is a voluntary act (i.e. not a requirement), it is reasonable to assume that the sponsors will only chose to offer courses where they can cover the cost, or even create a profit, for providing the course. Therefore, this requirement will not impose any net cost.

2.2.4 Cost from WAC 296-156-060 Denial, Suspension, and Revocation

The section outlines criteria for how L&I can deny, suspend, or revoke a worker's certification or a training courses approval. However, all relate to what constitutes noncompliance and what the agency may do in cases of noncompliance. Costs associated with noncompliance are not subject to analysis.

Chapter 3: Benefits of Proposed Rule

As discussed in RCW 49.105.005, fire protection measures are critical design elements meant to control the spread of a fire until active fire protection measures, such as sprinklers, fire extinguishers, or the fire department can take over and control a fire. Fire-resistant materials is a type of passive fire protection measures and help to protect structural steel, contain the fire, and limit damage to critical structural components. As such, benefits to this rule include benefits associated with limiting the potential for fire resistant material failure. The impacts range from costs associated with responding to fires, including costs for emergency response and fire suppression activities, cost associated with property damage and costs of business interruptions, to potential loss of life.

The requirements apply to individuals who spray-on apply fire-resistant materials to buildings classified as construction types I, II, III, IV, and V, as defined by the International Building Code, and install fire-stop systems in risk category III and IV, building as defined by the International Fire Code. Risk category III are building and other structures that represent a substantial hazard to human life in the event of failure and risk category IV buildings are building and other structures that represent a substantial hazard to human life in the event of failure[2].

For fire-stop installation, risk category III and IV buildings include hospitals, therefore we looked to costs associated with evacuation. A survey of available materials related to the evacuation of large commercial buildings produced a large amount of material on the evacuation of hospitals. Testimony to the difficulty and complexity of this process can be seen in the large number of commercial enterprises selling services to plan those evacuations. The following non-commercial sources give a good overview of the process. FEMA has produced their Hospital Evacuation: Principles and Practices. The Massachusetts Department of Public Health published a Hospital Evacuation Toolkit, and the California Hospital Association, has a Hospital Disaster Preparedness Checklist: Hospital Evacuation.[3]

The types of buildings for which the application of spray-on fireproofing fire-resistant material application is being regulated have an extremely wide range of uses and are of various sizes. These include high-rise buildings which often house commercial operations (particularly in Seattle), commercial structures, and other Type 1 building structures.[4] These buildings can house a sizable number of people at any point in time, and significant economic activity is generated

[2] https://codes.iccsafe.org/s/IBC2018P6/chapter-16-structural-design/IBC2018P6-Ch16-Sec1604.5

[3] https://www.acep.org/siteassets/uploads/uploaded-files/acep/by-medical-focus/disaster/fema-hospital-evacuation-slides.pdf
https://www.mass.gov/doc/evacuation-toolkit-planning-guide-0/download
https://calhospital.org/hospital-evacuation-checklist/

[4] A Type 1 building structure is a noncombustible (or limited-combustible) structure with a high level of fire resistance typically made from concrete or steel. These include housing complexities, hotels, garages, plus more.

from within others. The benefits from preventing any specific fire event can range from preventing the disruption of a small business to preventing the catastrophic loss of services and potential negative medical outcomes that would result from evacuating a hospital, up to avoiding the loss of life. While these benefits are identifiable and clear, they are nevertheless difficult to quantify. The dollar value of avoiding a destructive fire in one building, or avoiding the loss of a single life can far outweigh the cost of the proposed training requirement. Additionally, there are associated qualitative benefits that extend to societal well-being (such as uninterrupted financial operations) which can be significant but just as equally difficult to quantify.

Chapter 4: Cost-Benefit Determination

Analyzing the probable cost of the proposed rule results in an estimated burden on impacted individuals of a maximum of $1,401.92 per year with minimal costs to training providers. Given the relatively small size of the impacted labor force, even in aggregate, the probable cost are potentially significantly less than the probable benefits. Given these considerations, it is highly likely that the probable benefits of this rule outweigh the probable costs.

Chapter 5: Least Burdensome Analysis

RCW 34.05.328(1)(d) requires L&I to determine whether significant legislative rules are the least burdensome alternative for those required to comply with the goals and objectives of a rule. The following sections were identified as needing to be analyzed under this requirement:

WAC 296-156-020 Applicator Training and Certification Requirements

Explanation of the Rule:
This section sets the certification process for applicators, including required training courses, certification renewal every five years, and documentation submission to L&I.

Least Burdensome Alternative Justification:
This is the least burdensome alternative because training requirements balance safety and competency with minimal disruptions to the individual. Requiring renewal every five years aligns with RCW 49.105.020 and ensures applicators stay updated while limiting the frequency of retraining. Alternatives, such as more frequent renewals or longer courses where discussed during the rule development and would impose unnecessary costs without improving outcomes.

WAC 296-156-030 Training Course Approval

Explanation of the Rule:
This section outlines the process for approving training courses, specifying approved course types, required content, and instructor-to-student ratios.

Least Burdensome Alternative Justification:
This is the least burdensome alternative because it leverages existing training providers, reducing administrative overhead for the state. The approval process ensures consistency and quality without overly prescriptive requirements, allowing providers flexibility in course design. A more centralized approach would increase costs for both the state and training providers.

WAC 296-156-050 Training Course Content

Explanation of the Rule:
This section establishes required subject matter for training courses, mandating hands-on and in-person instruction in fireproofing materials, equipment use, and inspection techniques.

Least Burdensome Alternative Justification:
This is the least burdensome alternative because the required content aligns with established industry standards (e.g., ASTM), minimizing the need for new materials. Hands-on training ensures practical competency without requiring excessive course hours. Expanding the content scope would increase training costs without measurable benefits.

WAC 296-156-060 Denial, Suspension, and Revocation

Explanation of the Rule:
This section defines the criteria for denying, suspending, or revoking course approvals or individual certifications due to fraud, misrepresentation, or failure to comply with training requirements.

Least Burdensome Alternative Justification:
This is the least burdensome alternative because the clear criteria provide fairness and accountability while maintaining program integrity. Alternatives, such as stricter enforcement or less flexibility for providers, would either increase compliance burdens or compromise program credibility.

Chapter 6: Federal & Local Jurisdiction

Does this rule require those to whom it applies to take an action that violates requirements of another federal or state law?

☐ Yes. *(provide citation)*

☒ No.

Does this rule impose more stringent performance requirements on private entities than on public entities? RCW 34.05.328(1)(g)

☐ Yes.

☒ No.

If yes, explain whether the requirements justified by state or federal law. *(provide citation)*

Do other federal, state, or local agencies have the authority to regulate this subject?

☒ Yes *(describe below)* ☐ No

Is this rule different from any federal regulation or statute on the same activity or subject?

☐ Yes *(describe below)* ☒ No

If yes, check all that apply. The difference is justified based on the following:

☐ A state statute *(provide a citation)*

☐ There is substantial evidence that the difference is necessary to achieve the general goals and objectives of the statute as described above.

RCW 34.05.328(1)(h)

Local jurisdictions and fire departments may regulate fire safety measures, including materials used for fireproofing or fire stopping.

Explain how the rule has been coordinated, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. RCW 34.05.328(1)(i)
The rule has been coordinated, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter. The proposed rule aligns with the International Building Code (IBC) and ASTM standards, which are widely adopted by federal, state, and local jurisdictions to ensure consistency in fire safety regulations. Efforts were made to avoid conflicts or overreach by consulting with relevant agencies and stakeholders, including numerous union officials, small business owners, and affected parties, during the rule development process. This collaborative approach ensures the proposed rule integrates seamlessly with existing regulatory frameworks while addressing unique state-level concerns and statutory requirements.