Washington State Department of
Labor & Industries

Final Cost-Benefit Analysis

Chapter 296-96 WAC, Safety Regulations and Fees for all Elevators, Dumbwaiters, Escalators, and Other Conveyances

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CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Cost-benefit analysis 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 rule amendments to chapter 296-96 WAC that do not fall under these exemptions.

1.2 The background of this rulemaking

In the United States, there are currently more than 1.03 million elevators making approximately 20.6 billion passenger trips and 56,000 escalators transporting 105 billion passengers each year.[1] These conveyances are considered one of the safest modes of transportation, but they create a safety risk if not installed or altered properly, or if not inspected and maintained on a timely basis. Injury data from Consumer Product Safety Commission (CPSC) and the Bureau of Labor Statistics (BLS) indicate that conveyance-related accident rates are relatively low and fatalities are rare, and most accidents occur due to reckless behaviors of maintenance workers or passengers. The BLS catalogued 46 occupational fatalities related to the primary source category of 'elevators, hoists, aerial lifts, and personnel platforms',[2] and an estimated 26,129 non-fatal incidents involving elevators and other lifts occurred in the U.S. in 2019.[3]

Pursuant to Washington law (RCW 70.87.120), L&I must ensure the safety of all elevators and other conveyances in the state, except for those located in Seattle or Spokane metropolitan areas. This law gives L&I statutory authority to adopt rules governing the mechanical and electrical operation, acceptance tests, conveyance work, operation, and inspections that are necessary and appropriate and to adopt minimum standards governing existing installations. L&I may also establish by rule a schedule of fees to pay the costs incurred by L&I for the work related to administration and enforcement of chapter 70.87 RCW.

In 2018, L&I engaged in rulemakings to adopt new safety codes and make changes to the licensing rules. During the 2018 rulemaking process, L&I received additional proposals from stakeholders for potential rule revisions. In January 2019, L&I filed a preproposal statement of inquiry (CR-101) initiating rulemaking to address stakeholders' requests that were held over from the 2018 rulemaking process, as well as to further update and clarify the existing rules (see WSR 19-03-162).[4] Washington's elevator stakeholders were invited to participate in the review

[1] These figures were estimated by the National Elevator Industry Inc. (NEII), 2020.
[2] Data sources: Census of Fatal Occupational Injuries (CFOI), BLS, 2020.
[3] Data sources: "NEISS Data Highlights - Calendar Year 2019," CPSC's National Electronic Injury Surveillance System (NEISS), 2019.
[4] Available at: http://lawfilesext.leg.wa.gov/law/wsr/2019/03/19-03-162.htm

of the existing rules, submit proposals for changes to the rules, and provide recommendations to L&I regarding possible rule changes.

In April and May 2019, a Technical Advisory Committee (TAC) of industry experts and the Elevator Safety Advisory Committee (ESAC) reviewed proposals and provided recommendations to L&I on adoption of the rules. Because some of the recommended changes were outside the scope of the CR-101 filed on January 22, 2019, the notice was withdrawn and a new preproposal (CR-101) with an expanded scope of rulemaking was filed October 22, 2019.

1.3 Description of rule amendments

There are three major types of adopted changes to the current rule:

1) **Significant rule amendments.** Included in this category are amendments to:

WAC 296-96-00675(9), WAC 296-96-00675(10), WAC 296-96-00916(2)(e), WAC 296-96-01055, WAC 296-96-01057, WAC 296-96-23117, WAC 296-96-01030, and WAC 296-96-02700.

2) **Minor housekeeping changes and several addendums to the language for clarification purpose.** These addendums are necessary to promote the simplicity, clarity and consistency of the rules under this chapter, includes modifications to:

WAC 296-96-00650, WAC 296-96-00675, WAC 296-96-00904, WAC 296-96-00906, WAC 296-96-00910, WAC 296-96-00912, WAC 296-96-01030, WAC 296-96-01035, WAC 296-96-02410, WAC 296-96-02452, WAC 296-96-02460, WAC 296-96-02465, WAC 296-96-02470, WAC 296-96-02471, WAC 296-96-02530, WAC 296-96-02552, WAC 296-96-02580, WAC 296-96-02605, WAC 296-96-02640, WAC 296-96-02650, WAC 296-96-02700, WAC 296-96-05000, WAC 296-96-05020, WAC 296-96-05030, WAC 296-96-05070, WAC 296-96-05090, WAC 296-96-05140, WAC 296-96-05190, WAC 296-96-05210, WAC 296-96-07150, WAC 296-96-11080, WAC 296-96-18020, WAC 296-96-20005, WAC 296-96-23117, WAC 296-96-23118, WAC 296-96-23126, WAC 296-96-23130, WAC 296-96-23132, WAC 296-96-23200, WAC 296-96-23303, WAC 296-96-23605, WAC 296-96-23701, WAC 296-96-24401, WAC 296-96-24457, WAC 296-96-24480, WAC 296-96-24500, WAC 296-96-24516, WAC 296-96-

24528, WAC 296-96-24537, WAC 296-96-24543, WAC 296-96-24553, WAC 296-96-24560, WAC 296-96-24600, WAC 296-96-24611, WAC 296-96-24630, and WAC 296-96-24670.

3) This rulemaking is intended to increase fees by 5.08% to support operating expenses for inspections and other public safety activities for the Elevator Program. This is the Office of Financial Management's (OFM) maximum allowable fiscal growth factor for fiscal year 2020.[5]

Rulemaking is the best approach to align Washington's elevator licensing requirements with industry standards and practices, to update the current language to meet changing industry needs, and for rule clarity and ease of use. The beneficiaries of the adopted rules are: 1) elevator contractors that provide elevator installation, repair and maintenance services; 2) elevator mechanics that perform conveyance work; 3) building owners; and 4) private residential owners of conveyances.

CHAPTER 2: ASSESSING COSTS

2.1 Quantifiable Costs

2.1.1 Cost of installing an accessible stop switch

The new subsection WAC 296-96-00675(9) modifies the requirement in Section 3.10.3 of ASME A17.3. The adopted requirement is above the national safety standards, and imposes costs. Specifically, (9)(a) requires at least one stop switch to be located where it can be reached prior to physically stepping onto the car top. On older conveyances, the inspection station's stop switch is often located on the crosshead, and in many cases it cannot be reached without climbing onto the car top, creating a safety hazard. Property owners and managers will incur costs to retrofit non-compliant units.

The approach to estimating monetized compliance costs is to: 1) estimate the number of units that will be affected by the change in the provision; 2) estimate the cost per unit of installing the

[5]The fiscal growth factor of 5.08% is based upon OFM's projections adopted in November 2018. Each November, OFM's Expenditure Limit Committee adjusts the limit for fiscal growth factors for the previous and current fiscal year, and projects a limit for the following two years.

required switch; and 3) sum the costs for all affected units to yield aggregate probable costs of the requirement.

The provision would apply to currently active conveyances with a freight or passenger cab. Conveyances are considered active if they are within the state jurisdiction and operated/used under normal conditions. Table 1 shows the distribution of all conveyances in Washington State by their current status. Table 2 illustrates the distribution of the 18,718 currently active conveyances by type.

Table 1: The Distribution of All Conveyances by Status

Status of Conveyances[6]	Count	Share of Total
Active	18,718	48.9%
Inactive	12,936	33.8%
Deleted/ Removed	3,185	8.3%
New-not Accepted	1,411	3.7%
Cancelled	1,237	3.2%
Red-Tagged	658	1.7%
Decommissioned	73	0.2%
Temporary	58	0.2%
Total	38,276	100%

Table 2: The Distribution of All Currently Active Conveyances by Conveyance Type

Type of Conveyances	Count	Share of Total
Hydraulic elevator (Freight and Passenger)	11,768	62.9%
Cable elevator (Freight and Passenger)	3,688	19.7%
Wheel chair lift (and Porch lift)	1,139	6.1%
Escalator	525	2.8%
Material lift	374	2.0%
Grain elevator personnel lift	299	1.6%
Dumbwaiter	219	1.2%
Stair lift	195	1.0%
Inclined elevator	174	0.9%
Roped-hydraulic elevator (Freight and Passenger)	105	0.6%
Special purpose elevator	103	0.6%

[6] See Table A-1 in Appendix for the definition of each status.

Limited-Use/Limited-Application (LULA) elevator	70	0.4%
Belt manlift	16	0.1%
Hand-powered manlift or freight elevator	16	0.1%
Private residence elevator installed in other than a private residence	9	0.0%
Moving walk	6	0.0%
Boat launching elevator	4	0.0%
Sidewalk freight elevator	4	0.0%
Electric manlift	3	0.0%
Casket lift	1	0.0%
Personnel hoist	0	0.0%
Total	**18,718**	**100%**

Based on the distribution of conveyances, 16,046 currently active elevators fall into the type potentially affected (Table 3), but the exact number of units requiring a switch installation is difficult to determine. Given the fact that an accessible stop switch is already a feature on newer installations, and the industry has made an active effort to update older units, L&I believes that less than 15% of existing elevators would be affected. Thus, we conservatively estimate a range of 10% to 15% of existing units, or some 1,605 to 2,407 conveyances would be affected by this requirement.[7]

Table 3: Universe of Elevators Potentially Requiring a Stop Switch.

Type of Conveyance	Count
Hydraulic elevator (Freight and Passenger)	11,768
Cable elevator (Freight and Passenger)	3,688
Grain elevator personnel lift	299
Roped-hydraulic elevator (Freight and Passenger)	105
Special purpose elevator	103
Limited-Use/Limited-Application (LULA) elevator	70
Private residence elevator installed in other than a private residence	9
Sidewalk freight elevator	4
Universe of elevators potentially requiring stop switch.	**16,046**

[7] Two participants in the April 2019 TAC meeting informally indicated that the percentage could be as low as 3.8% and 1.2% of units in their areas respectively.

Based on the input from industry representatives, the average cost of this requirement would be $500 per elevator. The estimate includes the cost of the code compliant switch assembly, appropriate conduit and wiring, and installation.

Table 4: Total Cost of Stop Switch Requirement

Description	Value
Universe of elevators that are required a stop switch	16,046
Estimated percentage elevators of requiring a retrofit	10% to 15%
Estimated number of elevators requiring a stop switch	1,605 to 2,407
Cost of materials and installation of a stop switch per elevator	$500
Total cost of stop switch requirement	$802,300 to $1,203,500
Annualized cost of stop switch requirement	$103,902 to $155,852

Given these cost factors, the total probable cost of the provision is estimated at $802,300 to $1,203,500. Because the new installations would already require the stop switch, the cost only applies to existing units, and the cost would only have to be incurred once by the conveyance owners. In addition, the stop switch will continue to function and deliver safety benefits over a period of ten years or longer.[8] Thus, the annualized cost of the switch installation would be $103,902 to $155,852.[9]

2.1.2 Cost of disallowing alternative testing

Alternative testing was first incorporated into the 2013 edition of ASME and was maintained in the 2016 edition (ASME A17.1-2016) released in January 2016. [10] Prior to the 2018 update, L&I was two code cycles (2013 and 2016 editions) behind the industry safety standards. L&I completed a rulemaking process in 2018 to update its code requirement to the 2016 ASME standards, including the adoption of alternative testing option effective September 2018. Alternative testing methods have only been allowed since then.

This rulemaking was initiated in October 2019 and the new subsection WAC 296-96-00675(10) would disallow the clause 8.6.11.10 of the ASME standards 'Category 5 Tests Without Load Via

[8] Based on the elevator stakeholders' input and L&I's expert judgement.
[9] The discount rate is 5%.
[10] NEII Comment in "Regulations-Comments, 10/20/20", Pennsylvania DLI- Elevator Safety Board, Available at: https://www.dli.pa.gov/Businesses/Labor-Management-Relations/elevator_safety_board/Pages/default.aspx

Alterative Test Methodologies' from being followed in Washington; only standard testing as outlined in ASME A17.1 is allowed. L&I believes that the alternative "Without Load' methods have not demonstrated the same level of safety as standard testing with load methods. Further, the alternative testing methodologies are not common practice nationwide. Therefore, the change disallowing their use ensures the greater safety of conveyances. L&I is not aware of any elevator mechanics or elevator companies in the state of Washington that perform alternative tests in accordance with this provision. Thus, the change is unlikely to add any additional cost to affected parties.

2.1.3 Cost of signature requirement on continuing education certificates

This rulemaking amends the language under WAC 296-96-00916(2)(e)(iii) to specify that certificates of completion for continuing education courses must include the student's signature in addition to the instructor's; and the certificate must state that it is not valid without the signatures of both. The Elevator Program's current policy is only to accept certificates that have both signatures,[11] and the practice is widely accepted by the industry. The amended language should help clarify the expectations for both providers of continuing education and mechanics renewing their licenses. Because this is an existing practice, the amendment should not involve significant costs.

2.1.4 Cost of fee increases

In order to support increasing operating expenses, this rulemaking increases fees by the fiscal growth factor of 5.08% for all elevator related services. The increase reflects OFMs maximum allowable fiscal growth rate for fiscal year 2020. The impacted sections are listed in Table 5. Since the fee increases are within the rates allowed by OFM, the fee increases are exempted from regulatory analysis.

[11] The public L&I website's 'Renew an Elevator Mechanic License' page indicates that renewal of an elevator mechanic license requires "[a] signed certificate of completion for your required 8 hours of continuing education courses." https://lni.wa.gov/licensing-permits/elevators/mechanics-helpers/renew-an-elevator-mechanic-license#renew -accessed 2/17/21

Table 5: Provisions with Adopted Fee Changes

Section	Description
WAC 296-96-00922	Licensing fees.
WAC 296-96-01005(c)	Obtaining Permits.
WAC 296-96-01010	Installation and alteration permit fees.
WAC 296-96-01025	Permit fees for personnel and material hoists.
WAC 296-96-01027	Permit fee refunds.
WAC 296-96-01030	Plan approval.
WAC 296-96-01035	Inspection fees.
WAC 296-96-01035(1)	Reinspection.
WAC 296-96-01035(2)	Jump Inspection.
WAC 296-96-01035(3)	Variance inspections.
WAC 296-96-01035(4)	"Red tag" status fee.
WAC 296-96-01035(5)	Decommission inspection.
WAC 296-96-10135(6)	Voluntary inspections by request.
WAC 296-96-01040(1)	Construction use inspection fee.
WAC 296-96-01045(3)	Residential elevator inspection and fees.
WAC 296-96-01055	Technical services and consultations.
WAC 296-96-01057	Accident investigations.
WAC 296-96-01060	Inspections after normal business hours.
WAC 296-96-01065	Annual operating permit fees.

Two provisions include additional potential fee increases: WAC 296-96-01055, Technical services and consultations; and WAC 296-96-01057, Accident investigations. The current language only allows L&I to bill for whole hours, which may result in under-charging in some cases. For example, if one inspection requires 61 minutes and another one requires one hour and 59 minutes, L&I could only charge for one hour of inspection time in both cases. The adopted rule adds language to both provisions that would allow L&I to charge customers for the actual amount of time this service takes. This adopted change would make the billing practices more consistent with those of other programs.

Estimating the cost impact of billing for partial hours is complicated because there are no records of the unbilled partial hours from which we can estimate the average unbilled time per inspection. The typical accident inspection requires four to eight hours. We will make the conservative estimate that the typical billed time would increase by 30 minutes per four to eight

hours of inspection time. The same approach is used for estimating the impact of both WAC 296-96-01055 and 296-96-01057.

2.1.4.1 Cost of fee increase for technical services and consultations

Technical Services and Consultations are services requested voluntarily by customers. These services generally result in few billed hours annually (see Table 6). Currently the fee for field technical services is $80.30 per hour (including travel time) plus the standard per diem and mileage allowance granted to L&I inspectors. The adopted fee increases by the fiscal growth factor of 5.08% would increase this rate to $84.30. The average billed time for fiscal years 2018-2020 was three hours; the total fee collected for fiscal years 2019 and 2020 was zero dollars.

Table 6: Total Technical Inspection Fees Collected 2018-2020

Year	2018	2019	2020	Average
Technical Inspection Fees	$725.78	$0.00	$0.00	$241.93
Total Hours Billed	9	0	0	3

We estimated the unbilled hours using the assumption that technical inspections require four to eight hours. To be conservative, we generated the estimate of unbilled hours based on the nine billed hours in 2018. We estimate that 0.5 to 1 partial hours per year would be billed under the adopted rule, resulting in a cost increase of $42.15 to $84.30 to customers annually.

Table 7: Increased Cost in Accident Investigation Fees

Annual Average hours billed for accident inspections (FY 2018-2020)	3
Hours required for typical inspection	4 to 8
Estimated number of inspections with unbilled partial hours	1 to 2
Estimate of unbilled hours per year	0.5 to 1
Hourly Fee for Accident Investigation	$84.30
Total increase in cost per year	**$42.15 to $84.30**

2.1.4.2 Cost of fee increase for accident investigations

WAC 296-96-01057 mandates that L&I investigate injury-related conveyance accidents reported by the owner. Timely completion of accident investigations is critical to ensure the safety of all elevators and conveyances in Washington. The number of reported conveyance related accidents

for fiscal years 2016-2019 is presented in Table 8**.** On average, L&I is responsible for investigating 77 accidents annually.

Table 8: Conveyance Accidents Reported[12] (2016-2019)

Year	Elevator	Escalator	Total
2016	20	64	84
2017	19	47	66
2018	15	67	82
2019	13	64	77
Average	17	60	77

The accident inspection service is a fee-for-service program, and L&I has discretion whether to bill the owner of the inspected conveyance for the investigation. Currently, L&I may charge at a rate of $80.30 (including travel time) plus the standard per diem and mileage allowance granted to L&I inspectors. The adopted fee increases by the fiscal growth factor of 5.08% would increase the rate to $84.30.

The Elevator Program's current billing practice is not to charge for the first accident investigation for a location and ownership. If subsequent accidents occur within a year of the first one, the owner is charged for each subsequent accident investigation occurring at the location. If a year passes with no accident investigations, L&I no longer charges until their next accident investigation within a year. As a result of the charging practice, the number of investigations may differ substantially from the total fees charged. The average fee collected in the last three available fiscal years was $4,188, corresponding to approximately 52 billed hours (see Table 9).

Table 9: Total Accident Inspection Fees Collected 2018-2020

Year	2018	2019	2020	Average
Accident Investigation Fees	$4,323.74	$7,173.71	$1,065.90	$4,188
Total Hours Billed	54	89	13	52

[12] FY 2020 data was incomplete and therefore excluded from the average.

Table 10: Increased Cost in Accident Investigation Fees

Annual Average hours billed for accident inspections (2018-2020)	52.2
Hours required for typical inspection	4 to 8
Estimated number of inspections with unbilled partial hours	6.5 to 13
Unbilled partial hours per inspection	0.5
Estimate of unbilled hours per year	3.3 to 6.5
Hourly Fee for Accident Investigation	$84.30
Total increase in cost per year	**$280 to $560**

Based on the data from the past three fiscal years, we estimate that 3.3 to 6.5 partial hours per year would be billed, resulting in a cost increase of $280 to $560 to customers annually.

2.1.5 Cost of car top guardrails and signage

The sections WAC 296-96-23117 and WAC 296-96- 23118 under the current rule specify standards for car top guardrails for traction and hydraulic evaluators. This rulemaking amends WAC 296-96-23117 to incorporate traction and hydraulic elevators into a single section and more significantly, to adopt national consensus standard (ASME A17.1/CSA B44, 2.14.1.7) for guardrails on existing elevators in Washington State. Because the hoistways in existing elevators may not have sufficient overhead space to meet the clearances specified in 2.14.1.7.2(a) or (b), the amended rule allows for a slightly reduced railing height based upon existing instruction conditions. This would allow existing elevators to comply without being required to modify their hoistways. The adoption of the national standard for existing conveyances would involve alteration of the car top guardrails for numerous elevators, but the change is exempted from analysis under RCW 34.05.328(5)(b)(iii).

However, in the case that overhead conditions prevent the railing from complying with national standards, WAC 296-96-23117(5) requires the owner to provide signage as required by WAC 296-96-23119(2). Purchasing and installing the sign would result in increased costs, and the amendment would affect all existing elevators except for electric manlifts.

We estimate the cost in the following steps: 1) we identify all elevators that will be affected by rule; 2) we estimate the number of elevators that are not likely to have overhead conditions that allow compliance with ASME A17.1/CSA B44, 2.14.1.7; 3) we estimate the cost of installing the

sign per unit; and 4) we sum the costs for all affected units. The signage is assumed to be installed by a licensed elevator mechanic or contractor, and the estimated installation time is one hour. Results of the cost estimation are presented in Table 11.

Table 11: Increased Cost of Signage Requirement.

Average wage for Elevator and Escalator Installers and Repairers (SOC code 47-4021)[13]	$54.60
Time to install required signage (hour)	1
Cost of each sign	$5
Total cost of one installation	$59.60
Universe of elevators potentially requiring signage	16,220
Estimated percent of elevators requiring signage	10% to 15%
Estimated number of signs to be installed	1,622 to 2,433
Estimated cost of signage requirement	$96,671 to $145,007
Annualized cost of signage requirement	$12,519 to $18,779

We estimate that approximately 1,622 to 2,433 conveyances might be affected by the signage requirement, resulting in an additional cost of $96,671 to $145,007. Since the change applies to existing elevators, this would involve a one-time cost to comply. As the change will deliver safety benefits over a period of ten years or longer,[14] the annualized cost of the provision would be $12,519 to $18,779.[15]

2.1.6 Cost of amendment to plan approval exception

The rulemaking amends WACs 296-96-02605 and 296-96-02640 regulating residential and commercial stairway chairlifts to align the language with national standard ASME 18.1-2017 (adopted in 2018). A new section (7.8) in the ASME A18.1-2017 national standard indicates that all carriages, including residential ones, must have an overspeed governor. The ASME A18.1 provides instructions for testing the overspeed governor in commercial units, but not for residential units. L&I adopted language to clarify that the testing procedures specified in ASME

[13] Data Source: 2020 Occupational Employment and Wage Estimates, available at: https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Occupational-reports/OES/2020-oes-wage-estimates-report.pdf
[14] Based on the elevator stakeholders' input and L&I's expert judgement.
[15] The discount rate is 5%.

A18.1-2017, 10.4.1 should be followed for both commercial and residential units. The rule adopts national consensus standard without material change and is exempt from the regulatory analysis requirement. The amendment applies to new and altered chair lifts.

To facilitate compliance with the standard adopted in WAC 296-96-02605, L&I is amending the exception to WAC 296-96-01030, applying to residential chair lifts. Under the current rule, new and altered residential incline chair lifts are not required to have plans reviewed; however, the equipment must be listed and labeled by an accredited product testing laboratory and the plans supplied by the manufacturer must be on-site. The current rulemaking amends the exception to specify that L&I may request additional information as deemed necessary to determine compliance with adopted codes and testing standards. The amendment further indicates that governor overspeed safety testing shall be verified by manufacturer's documentation in accordance with ASME A18.1 Requirement 9.9.3. The overspeed testing is required by the national consensus standard (see WAC 296-96-02605).

The testing itself does not represent a new cost because it is already required by the adopted national standard. There may be minor administrative costs for lift contractors to include the required documentation in permit applications, but the costs are likely to be minimal. The documentation of testing results and the specifications sheet is a part of ordering the equipment. Additionally, submission of documentation from the testing lab waives the requirement for full load testing in the field, and allows the contractor or property owner to avoid a larger cost. The probable cost of the change is not significant.

2.1.7 Cost of changes to machine room requirements

The adoption of ASME A17.1-2016 by L&I allows for elevator equipment to be located in the hoistway. However, the language under the current Washington rule is ambiguous and confusing, implying that the practice may not be allowed. This rulemaking amends WAC 296-96-02552 to clarify the language and reflect currently adopted national standards for machine room-less elevators. This clarification enables customers to take advantage of the benefits of machine room-less elevators.

WAC 296-96-02700 is a new section that specifies requirements for machine rooms for private residence elevators. The rule changes would affect customers that install a machine in the

hoistway. Currently, the standards for private residence elevators are set by ASME A17.1-2006, 5.3 which do not include requirements for machine rooms. Subsection (1) adopts National Fire Protection Association (NFPA) 70 Section VIII as the current standard of code. Since this represents an adoption of national consensus standard without material changes, it is exempt from review under the APA. The subsection (2) creates a new regulatory requirement for an access door to the elevator motor brake in private residence elevators. The current national consensus standard (2016 ASME A17.1 - 5.3) does not require an access door for private residence elevators, which creates a safety issue for emergency rescue. The change to this section coincides with WAC 296-96-02552 that allows the machine and brake in the hoistway.

The adopted requirement for an access door would represent a potential new cost to customers who install a machine in the hoistway. However, there are currently no conveyances in the state with a machine in the hoistway. On the other hand, allowing the machine in the hoistway represents a substantial cost savings opportunity for customers because they would no longer need a dedicated machine room. The National Elevator Industry, Inc. (NEII) estimates that employing machine room-less designs can create savings of $50,000 - $100,000 per unit.[16] The cost of the access door would be included in the price of the elevator, and would still represent a substantial savings over elevators with a dedicated machine room. Thus, the new section does not add any realized cost to affected parties. Rather, it enables residential customers to safely take advantage of the potential cost savings and other advantages of machine room-less elevators.

CHAPTER 3: ASSESSING BENEFITS

A number of the changes and amendments in the adopted rule resulted from stakeholders' requests for potential rule revisions that were held over from the 2018 rulemaking. The adopted rule will likely benefit several stakeholder groups including: elevator contractors and mechanics, building owners, property managers, and the general public.

[16] National Elevator Industry Inc, NEII "Machine Room-less Elevators: The New Standard in Elevator Design," available at: http://www.neii.org/mrls.cfm

There are four types of benefits that are associated with this adopted rule. First, the rulemaking includes several significant changes that would create benefits for elevator contractors, maintenance, and repair personnel by increasing the safety of their working environment and reducing the risk of severe injury. Additionally, reducing the number of injuries to elevator contractors and maintenance personnel potentially creates benefits to conveyance owners and passengers in the form of more efficient installation and maintenance, contributing to safer conveyances.

Second, this rulemaking is intended to remove outdated requirements and update rules consistent with current statutory requirements. This rule will benefit employers by providing them with clearer, up-to-date compliance requirements. The adoption and compliance with national safety codes and standards increases safety for workers in the industry by ensuring that best safety practices are being uniformly followed.

Third, the rulemaking includes a number of housekeeping changes and language addendums that will improve the simplicity and clarity of this chapter. They will make it easier for conveyance owners and the industry to do business with L&I.

Last, the rulemaking increases the fees associated with elevator safety services to guarantee that elevator program is adequately funded. L&I is responsible for ensuring the safety of all elevators and other conveyances in the state outside of Seattle and Spokane. Between 2013 and 2020, the number of active conveyances in the state grew from 16,208 to 18,718, an increase of 15%. The fee increases ensure that L&I is able to pay the costs incurred for the work related to administration and enforcement of chapter 70.87 RCW, and keep up with an expanding industry.

3.1 Quantifiable benefits

3.1.1 Benefits due to the reductions of non-fatal accidents involving conveyances

Elevators and escalators pose a variety of hazards to workers as well as the general public, including risk of serious injuries to workers engaged in installation, repair, or maintenance.

Elevator shafts can present risks to workers responsible for cleaning the shafts or performing construction work on or around open shafts.[17]

Estimating the benefits of the reductions in non-fatal accidents involves four steps: 1) estimating the average number of conveyance related injuries occurring each year; 2) estimating the number of conveyance related injuries that can be avoided or prevented as a result of the rulemaking; 3) estimating the average cost per conveyance related injury; and 4) summing the cost of all avoidable injuries.

L&I relies on two primary data sources to estimate the frequency and costs of injuries associated with conveyances. The first source is its internal workers compensation claims data. This data has detailed descriptions of the causes and claim costs of the injuries, but it is limited to occupational injuries and does not reflect incidents occurring to the general public. The second data source is the National Electronic Injury Surveillance System (NEISS) conducted by the Consumer Product Safety Commission (CPSC). The NEISS collects and publishes injury data associated with various consumer products, and the data includes incidents reported by the general public. The injuries contained in the NEISS may include incidents to workers as well; thus, the two samples are used to generate a range of the numbers of potential injuries that can be avoided.

To estimate the number of preventable accidents, we rely on internal data on conveyance accident investigations and conclusions of fault. The number of accidents reported by this data source differs from the others due to the methods of collecting and reporting the data, as well as the scope and purpose of the underlying data.

Although most types of conveyances (listed in Table 2) will be impacted by the rules, the significant changes addressed in Chapter 2 primarily impact elevators and lifts. As a result, it is difficult to quantify the impacts of the rule on escalator safety. Thus, we report the frequency of occurrence and costs associated with escalator-related injuries for reference, but we do not

[17] CPWR Data Report.

directly quantify any benefits. To the extent that the adopted rule increases escalator safety, this approach will tend to underestimate the total benefits of the rule.

3.1.1.1 Reported conveyance accidents in Washington State

A critical responsibility of L&I is to investigate reported conveyance accidents in order to identify fault and enforce corrective actions. Table 12 describes the number of reported injury incidents involving conveyances that have been investigated by L&I between fiscal years 2011-2019. The incidents are delineated by the conclusions of fault. "No Fault" means the accident was caused by something the person riding the conveyance did, while "At Fault" indicates that there was a problem with the conveyance itself. The at-fault incidents may involve worn, damaged, or defective equipment parts, and are potentially avoidable through up-to-date safety rules, routine maintenance and inspections.

Table 12: Count of Elevator and Escalator Injuries by fiscal year (2011-2019[18])

	Elevator Accidents				Escalator Accidents			
Fiscal Year	**No Fault**	**At Fault**	**All**	**At Fault (%)**	**No Fault**	**At Fault**	**All**	**At Fault (%)**
2011	19	5	24	21%	66	1	67	1%
2012	17	7	24	29%	81	1	82	1%
2013	17	8	25	32%	62	1	63	2%
2014	12	10	22	45%	63	2	65	3%
2015	10	7	17	41%	72	1	73	1%
2016	12	8	20	40%	62	2	64	3%
2017	8	11	19	58%	47	0	47	0%
2018	10	5	15	33%	66	1	67	1%
2019	8	5	13	38%	63	1	64	2%
Annual Average	**12.6**	**7.3**	**19.9**	**38%**	**64.7**	**1.1**	**65.8**	**2%**

Between 2011 and 2019, there were an average of 7.3 "at fault" elevator accidents, constituting 38% of the investigated elevator accidents, and 1.1 "at fault" escalator incidents, accounting for 2% of the reported accidents. The number of reported accidents for both types of conveyances generally trended downward during this time period.

[18] Average excludes FY 2020 due to incomplete data.

A number of conveyance-related injuries result from passengers or workers being reckless or negligent, or as a result of other human errors, so it is likely that some injuries will occur despite the safe condition of the conveyances. However, adopting and enforcing the most current safety standards, conducting regular inspections, and ensuring that elevator contractors and mechanics are qualified, should all increase the likelihood that conveyances are in safe and working order and help to reduce injuries caused by the faulty conveyances.

3.1.1.2 Estimates on the number of injuries based L&I's internal workers compensation data source

For conveyance-related accidents involving workers, L&I's internal claims data is a reliable source. To assess the number of conveyance related workplace accidents, we first reviewed all claims with an accident year between 2014 and 2020, and identified those that contained "elevator" or "escalator" in both the claim event and accident source description.[19] This method may not capture all actual accidents involving conveyances, but it can provide us with an approximation of work-related accident counts involving conveyances. In addition, the claims data contains other useful information such as the cost of each accident, the medical treatment record, a description of the injured part of the body, and the demographic and geographic characteristics of the injured worker.

We estimated the average cost of each elevator-related or escalator-related injury based on the historical workers compensation data for closed claims. The numbers and average claim costs of occupational injuries related to elevators and escalators for fiscal years 2014 through 2020 are outlined in Table 13. On average, there were 30 occupational injuries involving elevators each year and the average cost was $5,907 per claim.

Table 13: Numbers and Costs of Injuries for Elevator and Escalator Related Accidents

Fiscal Year	Number of accidents involving elevators	Average cost for claims involving elevators	Number of accidents involving escalators	Average cost for claims involving escalators
2014	39	$5,393	2	$3,444
2015	35	$5,327	2	$1,420
2016	36	$7,891	2	$426

[19] Claims from Spokane and Seattle were excluded from the total claim count.

2017	27	$3,446	3	$964
2018	26	$10,163	1	$4,472
2019	27	$4,125	1	$201
2020	17	$5,008	0	$0
Average	**30**	**$5,907**	**1.6**	**$1,799**

In addition to the direct cost associated with claims, there are often indirect costs that may include damaged equipment, lost worker productivity, costs related to hiring and training replacement workers, and administrative costs. To account for these indirect costs, we adjust the total cost of injury by an indirect cost ratio of 110% of the claim costs.[20]

As reported in section 3.1.1.1, the average number of at fault elevator injuries was 7.3, which would represent approximately a quarter of the 30 average annual claims estimated from the workers compensation data. This rulemaking includes a number of changes to safety rules that should contribute to reducing the number of at-fault accidents. Further, several of the significant changes such as the stop switch requirement (WAC 296-96-00675(9)) and car top guardrails requirement (WAC 296-96-23117) directly address hazards faced by elevator mechanics, contractors, and other construction occupations working around elevators. Based on these considerations we assume that approximately one-quarter of these occupational injuries are preventable by the compliance with provisions in the adopted rule. Taking into consideration the rule changes and the type and cause of accidents that occur, L&I estimates that 7.5 non-fatal elevator-related accidents can be prevented each year. Using the average claim cost estimated from workers' compensation data, the total benefit of avoiding these injuries amounts to $93,043 annually, with a range of $54,273 to $160,072.

Table 14: Summary of Benefits from Prevented Non-fatal Elevator-related Injuries

Direct claim cost for a nonfatal claim	$3,446 - $10,163
Indirect-to-direct cost ratio	110%
Total cost per nonfatal injury	$7,236 - $21,343
Average number of nonfatal injuries occurring each year	30
Percentage of nonfatal injuries that are preventable	25%
Average number of nonfatal injuries prevented each year	7.5
Total annual benefit of prevented nonfatal injuries	$54,273- $160,072

[20] Data Source: Benefits of the OSHA On-site Consultation Program-An Economic Analysis, OSHA, 2018.

3.1.1.3 Estimates on the number of injuries that can be reduced using the NEISS data source

L&I's internal databases primarily cover occupational injuries and thus may underestimate the total number of conveyance injuries occurring in the state. An alternative to this data source is the NEISS, which collects and publishes injury data associated with various consumer products based on a nationally representative probability sample of hospitals in the U.S. and its territories.[21] The NEISS provides an online data query tool[22] for customers to obtain the rates of injuries (per 100,000 population) for elevators and escalators, which can be used for injury estimates in Washington State. Nationwide, the rate ranged from 3.45 to 4.72 per 100,000 population for elevator-related injuries, and between 3.31 and 4.02 for escalator-related ones during this period. Assuming these types of injuries occur at the same rate in the state of Washington, we are able to estimate the total number of injuries for Washington State less the cities of Seattle and Spokane. Table 15 shows that an average of 256 elevator-related injuries and 233 escalator-related injuries might have occurred each year in Washington State between 2014 - 2019. The disparity between NEISS injury estimates and those from the workers' compensation data may indicate that a high proportion of elevator and escalator related injuries involve the general public.

Table 15: Projected Conveyance Related Injury Count for WA State

Year	Rate of elevator-related injuries	Rate of escalator-related injuries	State less city of Seattle and Spokane population (000s)*	Total count of elevator-related injuries	Total count of escalator-related injuries
2014	3.45	4.01	6,115.37	211	245
2015	3.60	3.62	6,185.91	222	224
2016	4.72	3.31	6,282.40	296	208
2017	4.21	3.39	6,379.30	269	216
2018	4.01	4.02	6,477.07	260	261
2019	4.26	3.68	6,577.11	280	242
Average	4.04	3.67	6,336.19	256	233

**: April 1 population estimate 20014-2019. OFM, WA.*

[21] The hospitals participating in NEISS report patient information for every emergency department visit associated with a consumer product, and the total number of product-related injuries occurring nationwide can be estimated from the sample of cases reported.

[22] Available at: https://www.cpsc.gov/cgibin/NEISSQuery/home.aspx

The NEISS data include coefficients of variation (CV) for injury estimates. We used the CV value to generate ranges for the number of injuries that may occur. Ranges are included in Table 16. Given that the adopted rule includes various provisions that should significantly reduce injuries both to workers and the general public, L&I conservatively estimates that 5% - 10% of total injuries could be prevented as a result of implementing this new rule.

Table 16: Range of Estimates on Elevator and Escalator Related Injuries in Washington

Year	CV for elevator-related injury estimate	Lower limit	Upper limit	CV for escalator-related injury estimate	Lower limit	Upper limit
2014	0.20	126	295	0.18	157	334
2015	0.17	147	298	0.20	134	313
2016	0.16	202	391	0.19	129	287
2017	0.17	177	360	0.19	134	299
2018	0.14	187	333	0.16	177	344
2019	0.15	196	365	0.18	155	329
Average	0.17	173	340	0.18	148	318

The total benefit of the adopted rule in reducing conveyance related injuries also depends on the monetized cost of each injury. Lacking better data, we estimate the cost of each injury using the average cost per claim of $5,907 from the workers compensation data. While this value may overestimate cost of injuries where the victims were treated and released without hospitalization, it may also underestimate instances where the victims were admitted to the hospital. [23] Combined with the estimated number of preventable injuries, the adopted rule could result in a benefit anywhere from $50,985 to $201,033 each year, with the average of $126,009.

Table 17: Benefits of Prevented Non-Fatal Elevator-Related Injuries

	Lower limit	Upper limit	Average
Estimated number of elevator-related injuries occurring each year	173	340	256
Estimated number of preventable injuries each year	9	34	21
Cost savings per prevented injury	$5,907	$5,907	$5,907
Total annual benefit of prevented nonfatal injuries	$50,985	$201,033	$126,008

[23] According to the NEISS injury statistics in 2014-2019, an average of 88% of all conveyance-related injury victims were treated and released without hospitalization while the remaining 12% were admitted to hospitals.

3.1.2 Benefits due to the reductions of fatal accidents involving conveyances

The conveyance industry is dynamic and the number of conveyances in the state is constantly increasing. Between 2013 and 2020, the number of active conveyances in the state grew from 16,208 to 18,718, an increase of 15%. Although fatal elevator-related injuries are rare, the potential for conveyance related injuries and fatalities increases as more conveyances are used. The BLS tracks fatal occupational injuries nationwide in the Census of Fatal Occupational Injuries (CFOI). According to CFOI data, there have been two fatal elevator-related occupational injuries reported in Washington State over the past ten years.[24] The CFOI reports that there were an average of 48 elevator-related fatal injuries occurring each year nationwide across all industries between 2011 and 2019, and 50%, or 24 fatalities were from the construction industry (Table 18). Workers in the construction industry are regularly involved with conveyance installation, repair, and maintenance, and face a higher risk of fatal elevator-related injuries than workers from other industries.

Table 18: U.S. Elevator-Related Fatal Injuries by Year (2011-2019)[25]

	Count of Fatal Injuries		
Year	**All Industries**	**In Construction**	**Percent Construction**
2011	46	24	52%
2012	42	12	29%
2013	40	19	48%
2014	54	24	44%
2015	58	36	62%
2016	46	28	61%
2017	47	25	53%
2018	44	27	61%
2019	51	24	47%
Average	**48**	**24**	**50%**

[24] CFOI data for Washington State includes Spokane and Seattle.
[25] Source: BLS CFOI, Fatalities by primary source of injury: elevators, hoists, aerial lifts, personnel platforms--except truck-mounted and elevator shafts

A 2018 report by the Center for Construction Research and Training (CPWR) examined BLS CFOI micro data and highlighted trends in elevator-related fatalities in the construction industry from 2003 to 2016.[26] The CPWR report details that in the period from 2011 to 2016, there were 145 elevator-related fatalities involving construction workers nationally, accounting for more than 50% of the 286 elevator-related injuries in all industries. Among construction occupations, Elevator Installers and Repairers (SOC code 47-4021) experienced 19 fatalities during the period, and had the highest risk of elevator-related deaths, with a rate of 14.9 fatalities per 100,000 FTEs. The construction subsector: Other Building Equipment Contractors (NAICS 23892), which includes elevator or escalator installation, had the most elevator-related fatalities (25 deaths) of any construction subsector from 2011 to 2016. Table 19 summarizes elevator-related fatal injuries occurring nationally.

Table 19: U.S. Elevator-Related Fatal Injuries at Detailed Level (2011-2016)[27]

Industry/ Occupation	Total Deaths	Annual Average
All Industries	286	47.7
Construction	145	24.2
NAICS 23892	25	4.2
SOC 47-4021	19	3.2

The CPWR report found that the two leading causes of elevator-related fatalities were falls to a lower level (53.5%) or being caught in or compressed by an object or equipment (25.7%).[28] This rulemaking includes several new or amended provisions that are targeted at reducing fall and crushing hazards for elevator mechanics and maintenance personnel. For example, WAC 296-96-00675(9) mandates a stop switch to ensure that an elevator is stopped and cannot move before maintenance or repair workers get on the top of the conveyance, as unexpected movement of the conveyance creates a fall or crushing hazard to the worker. WAC 296-96-23117 adopts the national consensus standard for guardrails for existing elevators; the standardization of safety guardrails between new and existing elevators is intended to reduce the fall hazard for personnel working on top of the elevators. Additionally, the signage requirement in WAC 296-96-

[26] Xiuwen Sue Dong, Xuanwen Wang, and Rebecca Katz, (2018) "Deaths and Injuries Involving Elevators or Escalators in Construction and the General Population," Data Report, CPWR 4th quarter, 2018.
[27] Data Source: CPWR Data Report.
[28] CPWR Data Report p. 4.

23117(5) is intended to prevent a crushing hazard that is created by guardrails that deviate from the adopted national standard.

L&I expects this rule and the provisions targeting specific hazards associated with serious injuries will help prevent potential worker fatalities. The 18,718 active conveyances in Washington State account for approximately 1.8% of 1.03 million units in the United States.[29] Assuming that fatal injuries are proportional to the number of conveyances in a state, the CFOI data reported in Table 18 suggests that Washington would experience an average of one elevator-related occupational fatality per year. The historical data for Washington indicates that fewer fatalities occurred; but, as the industry expands the potential for future fatal injuries increases. The majority of elevator-related accidents result from passenger behavior, so it is unlikely that all injuries can be avoided.

Taking into consideration the changes made in this rulemaking and the nature of accidents that occur, L&I concludes that the rulemaking is likely to contribute to the prevention of 1 fatal injury over a 10-year period. To be conservative, we estimate the benefits based on the reduction of 0.5 to 1 fatal injuries over that period. Together with the value of a statistical life (VSL), the monetized total benefits of avoiding these injuries amount to $0.78 million annually, with a range of $0.52 million to $1.03 million.

Table 20: Summary of the Benefits from Reduction in Fatal Injuries

Value of a statistical life[30]	$9.6 million
Total cost per fatality[31]	$10.3 million
Number of fatalities prevented over 10 years	0.5 - 1
Cost savings from prevented fatal injuries over 10 years	$5.15 million - $10.3 million
Annual cost savings from prevented fatal injuries	$0.52 million - $1.03 million

[29] National Elevator Industry Inc. (NEII), 2020.
[30] Data Source: Departmental Guidance on Valuation of a Statistical Life (VSL) in Economic Analysis, USDOT, 2016. This was the most recent VSL estimate made by a federal government agency in its economic impact analyses.
[31] VSL is inflated using CPI-U index.

3.2 Qualitative benefits of this adopted rule

In addition to the benefits that are quantified in the sections above, there are some others that are difficult, sometimes even impracticable, to monetize. This section of the report describes how these probable qualitative benefits are identified and weighed in along with the quantified benefits. While these qualitative benefits are difficult to measure, their values can be large and they can have a deep impact on all involved parties, thus they need to be addressed properly.

First, the adopted rule improves clarity and consistency to conveyance industry participants and owners. The updated language and definitions removes ambiguities and uncertainty, and make it easier for industry participants to understand the latest updates related to current requirements with industry standards and best practices.

A second significant component of these benefits is the avoidance of the pain and suffering felt by families and friends of victims of accidents. When a serious accident occurs, it not only affects the victim but also those close to that person. This may be in the form of the dependents' and friends' pain and suffering, dread, emotional distress, and other physical and mental losses and should not be ignored, although difficult to monetize.

Other benefits include decreasing legal liability exposure for L&I and conveyance owners, more outreach and consultation opportunities for all customers, and increased capacity to perform quality assurance audits and training of L&I inspectors and licensed mechanics in the industry.

CHAPTER 4: CONCLUSION

In compliance with the Administrative Procedures Act (APA), chapter 34.05 RCW, L&I has analyzed the potential economic impact of this adopted rule and estimated the probable costs and benefits associated with the adopted rule.

It is worth noting that there is always some degree of uncertainty in anticipating what the costs and benefits of an adopted rule will ultimately be and the actual economic impact of the adopted rule remains unknown. That said, within the constraints of our resources, we have attempted to

provide estimates that are as accurate as possible by performing a comprehensive analysis that is data-driven and evidence-based.

L&I estimates that the adopted rule results in a total of $146,009 in the increased compliance costs, with a range from $116,743 to $175,276 annually. The estimated total benefits of this rule that can be quantified arrive at $865,543 using the internal workers compensation data for injuries, and $898,509 using the NEISS injury data. The actual total benefits could be anywhere from $565,655 to $1,231,033.

Table 21: Summary of quantifiable costs and benefits of the adopted rule

Cost Component:	Range of Cost	Point Estimate
1. Cost of installing an accessible Stop Switch (WAC 296-96-00675(9))	$103,902 to $155,852	$129,877
2. Cost of Fee Increase for Technical Services and Consultations (WAC 296-96-01057)	$42.15 to $84.30	$63
3. Cost of Fee Increase for Accident Investigations (WAC 296-96-01057)	$280 to $560	$420
4. Increased Cost of Signage Requirement (WAC 296-96-23117(5))	$12,519 to $18,779	$15,649
Total cost:	$116,743 to $175,276	$146,009
Benefit Component	Range of Benefit	Point Estimate
1. Benefits from prevented non-fatal elevator-related injuries estimated from workers compensation data	$54,273 to $160,072	$93,043
2. Benefits from prevented non-fatal elevator-related injuries estimated from NEISS data	$50,985 to $201,003	$126,009
3. Benefits from Reduction in Fatal Injuries	$515,000 to $1,030,000	$772,500
Total benefit:	$565,655 to $1,231,033	$898,509

Based on these results, L&I concludes that the probable benefits of the adopted rule exceed the probable costs.

CHAPTER 5: REFERENCES

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CHAPTER A: APPENDIX

A-1: Definition of Conveyance Status

Active	A conveyance that is within the state jurisdiction and operated /used under normal condition.

Inactive	An installed elevator that does not need an annual inspection. Examples are tribal or federal conveyances (military base), annexed buildings such as in Seattle and Spokane, and residential conveyances.
Deleted/ Removed	An installation where all mechanical and electrical components of the conveyance are removed from the structure.
New-not Accepted	No final acceptance has been issued. Conveyance is not ready for use.
Red-Tagged	An elevator or other conveyance that has been removed from service and operation because of noncompliance with chapter 70.87 RCW and chapter 296-96 WAC, or at the request of the owner.
Cancelled	An installation was going to be done but a job was pulled for reasons such as person/or company not needing the conveyance after all, switching contractors after original permit was pulled, etc.
Decommissioned	An installation whose power feed lines have been disconnected and: (a) A traction elevator, dumbwaiter, or material lift whose suspension ropes have been removed, whose car and counterweight rests at the bottom of the hoistway, and whose hoistway doors have been permanently barricaded or sealed in the closed position on the hoistway side; (b) A hydraulic elevator, dumbwaiter, or material lift whose: Car rests at the bottom of the hoistway, pressure piping has been disassembled and a section removed from the premises, hoistway doors have been permanently barricaded or sealed in the closed position on the hoistway side, suspension ropes have been removed and counterweights, if provided, landed at the bottom of the hoistway; or (c) An escalator or moving walk whose entrances have been permanently barricaded.
Temporary	A temporary license (30 day) given to provide movement of construction personnel and tools only.