2024 Uniform Plumbing Code (UPC) Washington State Amendments

Cost-Benefit Analysis and Small Business Economic Impact Report

April 2026

EXECUTIVE SUMMARY

Economic Impact Analysis for 2024 Uniform Plumbing Code Amendments, Washington State Building Code Council. All thirteen proposals demonstrate positive or neutral economic impact with substantial public health and safety benefits. No proposal creates a disproportionate burden on small businesses.

Legend for Proposals	
Positive Net-Cost	*
Neutral	Blank
Negative	**

TABLE OF CONTENTS

Section	Title	Page Number
1	Executive Summary	1
2	Table of Contents	1
3	Overview and Methodology	2
3.1	General small-business engagement statement	2
3.2	General jobs-impact statement	2
3.3	General Cost to small business	3
4	Key Economic Findings	3
4.1	Net Economic Impact of 2024 UPC Amendments	3
4.2	Small Business Burden	3
4.3	Public Benefit	3
4.4	Industry Alignment	3
5	Small Business Impact Summary	3
5.1	Affected NAICS Sectors	3
5.2	Cumulative Economic Analysis	3
5.3	Overall Economic Benefits	3
5.4	Small Business Impact Summary	3
6	Proposal: Specific Cost-Benefit Analyses	3
6.1	24-GP2-001 -- UPC 1104.1 -- Storm Drainage Conversion Factors	4*
6.2	24-GP2-002 -- UPC 814.5 -- Heat Pump Water Heater Condensate	5*
6.3	24-GP2-003 -- UPC Table 603.2 -- Backflow Prevention Devices	7*

6.4	24-GP2-004 -- UPC 313.1 -- Seismic Restraints	9*
6.5	24-GP2-005 -- UPC 104.4.5 -- Suspension or Revocation	11*
6.6	24-GP2-007 -- UPC 603.2 -- Approval of Devices or Assemblies	12*
6.7	24-GP2-008 -- UPC 603.5.12 -- Beverage Dispensers	14*
6.8	24-GP2-009 -- UPC 603.5.22 -- Chemical Dispensers	16*
6.9	24-GP2-010 -- UPC 609.8.3 -- Hot-Water Recirculating Pumps	18*
6.10	24-GP2-014 -- UPC 801.8 -- Elevator Hoist way Drainage	21*
6.11	24-GP2-017 -- UPC 609.13 -- Meters	23
6.12	24-GP2-018 -- UPC Section 702.2 -- Intermittent Flow Table Extension	24*
6.13	24-GP2-021 -- UPC 312.9 -- Steel Nail Plates	26
7	Appendix A - Documentation Required under RCW 34.05.328	27
7.1	General Goals and Objectives (RCW 34.05.328(1)(a)	27
7.2	Alternatives to Rulemaking (RCW 34.05.328(1)(b)	28
7.3	Probable Benefits and Costs (RCW 34.05.328(1)(c) and (d)	29
7.4	Least Burdensome Alternative (RCW 34.05.328(1)(d)	29
7.5	Small Business Economic Impact (RCW 34.05.328(1)(e)	29
7.6	Federal and State Law Comparison (RCW 34.05.328(1)(f)	30
7.7	Performance Requirements: Public vs Private (RCW 34.05.328(1)(g)	30
7.8	Federal Regulation Comparison (RCW 34.05.328(1)(h)	30
7.9	Coordination with Other Agencies (RCW 34.05.328(1)(I)	30

OVERVIEW

This document presents comprehensive economic impact analyses and small business assessments for thirteen proposed amendments to the 2024 Uniform Plumbing Code (UPC) as adopted by Washington State. These amendments address clarity, public health protection, regulatory alignment, and technical accuracy while minimizing economic burden on affected businesses.

General Small-Business Engagement Statement

The Washington State Building Code Council (SBCC) conducted an open and inclusive public process for the 2024 UPC amendments, including public notice of Council meetings, multiple Technical Advisory Group (TAG) meetings, and dedicated public listening sessions at which small businesses and their representatives were invited to comment on each proposal. Notice of these opportunities was broadly distributed through the SBCC website, email lists, and industry associations, and written comments were accepted throughout the rulemaking period so that small plumbing contractors, builders, designers, and other affected firms had multiple avenues to be heard. While participation levels varied by proposal, the Council took reasonable and practicable steps each time to solicit, receive, and consider small-business input before finalizing the rule language.

General Jobs-Impact Statement

During this rulemaking, the SBCC did not receive quantitative evidence demonstrating that the adopted UPC amendments will either create or eliminate jobs in the affected industries. Stakeholder comments and the economic analysis indicate that the proposals primarily clarify existing practice, align with national standards, and reduce regulatory burden. Still, no data was submitted to support a defensible numeric estimate of job gains or losses attributable to these specific changes.

General Cost to small business

SBCC is unable to calculate the cost per employee, cost per hour of labor, or cost per one hundred dollars of sales because it did not receive sufficient quantitative information (for example, employee counts, wage data, hours worked, or gross sales figures) to support identification of disproportionate impact on small businesses in accordance with RCW 19.85.040(1)."

Key Findings:

Net Economic Impact: All proposals show neutral to positive economic impact
Small Business Burden: Minor positive to neutral; no proposals create a disproportionate burden
Public Benefit: Significant health, safety, and regulatory clarity improvements
Industry Alignment: Most amendments codify existing industry practices

Small Business Impact Summary

NAICS Code	Industry	Proposals Affected
238220	Plumbing, Heating, Air-Conditioning Contractors	11 of 13
541330	Engineering Services	2 of 13
236115	New Single-Family Housing Construction	1 of 13
236116	New Multifamily Housing Construction	1 of 13
236220	Commercial Building Construction	2 of 13
238290	Other Building Equipment Contractors	3 of 13
622110	Hospitals	1 of 13
721110	Hotels/Motels	1 of 13
562991	Septic Services	1 of 13
423850	Equipment Wholesalers	2 of 13
811310	Machinery Maintenance	2 of 13

CUMULATIVE ECONOMIC ANALYSISEconomic

Overall Construction Cost Impact:

- 10 Proposals: $0 impact (clarifications, existing requirements)
- 2 Proposals: Minimal increase ($50–$800 per project)
- 1 Proposal: Cost savings ($200–$5,000 per project)

Overall Economic Benefits:

- Design time savings: $7.50–$75 per project (multiple proposals)
- Avoided rework: $200–$10,000 per incident
- Life-cycle savings: $2,000–$50,000 per protected system
- Reduced code research: 15–20% time savings for small firms

Small Business Impact Summary:

- Positive Impact: 8 proposals (reduced costs/complexity)
- Neutral Impact: 5 proposals (no burden change)
- Negative Impact: 0 proposals

Proposal Identification
Log Number: 24-GP2-001
Code Section / Title: 2024 Uniform Plumbing Code Section 1104.1 – General (Storm Drainage)
Proponent/Author: Dave Price

1. **Description & Rationale**
   - **A. Summary of current Baseline (without proposal):**
     - Current UPC conversion factor for continuous storm drainage is based on a 4-inch per hour rainfall rate (1 gpm = 2496 sq ft of roof area), requiring designers in Washington State to perform secondary calculations to convert to the state's actual 1-inch per hour rate.
   - **B. Summary of Baseline with changes:**
     - The amendment changes the conversion factor to reflect Washington State's 1 inch per hour rainfall rate, making 1 gpm equivalent to 9984 square feet of roof area (4 times the current factor), eliminating the need for secondary calculations.
   - **C. Rationale Statement:**
     - Washington State cities (Seattle, Spokane, Walla Walla) have assigned rainfall rates of 1 inch per hour per Appendix D Table D 101.1, not the model code's 4 inches per hour. This amendment provides direct conversion factors specific to Washington conditions, streamlining design calculations.

2. **Economic Cost Analysis**
   - **A. Construction Cost Impact:**
     - No change to construction costs - this affects only design calculations, not physical installation.
     - *Estimate per unit (if feasible):* $0/unit
     - *Total potential range for typical projects:* $0
   - **B. Implementation/Plan Review/Inspection Costs:**
     - Reduced plan review time due to the elimination of secondary conversion calculations.
     - ***Estimated time/cost impact:*** 0.1-0.2 hours saved per storm drainage design review
   - **C. Life-Cycle Costs:**
     - No impact on physical systems or maintenance.
     - *Estimate annual or project life-cycle effect:* $0
   - **D. Other Costs:**
     - Minimal training for engineers and plan reviewers on updated conversion factors; no new administrative costs.

3. **Economic Benefit Analysis**
   - **A. Direct Cost Savings:**
     - Research shows engineering design costs $50-$150 per hour. Eliminating secondary calculations saves 0.1-0.3 hours per storm drainage design.
     - *Quantify per unit if possible:* $7.50-$45 saved per storm drainage design
   - **B. Operational Benefits:**
     - Enhanced design efficiency and reduced calculation errors; improved code clarity for Washington-specific conditions.
   - **C. Other Benefits:**
     - Reduced design errors leading to proper storm system sizing; consistency across Washington jurisdictions using state-specific rainfall data.
4. **Small Business Economic Impact**
   - **A. Small Business Categories Affected:**

- Small civil engineering firms (NAICS 541330), small plumbing design consultants, and small architectural firms with storm drainage design responsibilities.

B. Compliance Burden Comparison:

- Research reveals that small engineering firms spend disproportionately more time on code calculations due to limited staff resources.
- Small firms benefit more from streamlined calculations than large firms with dedicated specialists.
- Minor positive impact - reduced design time and calculation complexity.

C. Potential Disproportion/Mitigation:

- No mitigation needed - amendment reduces burden.
- Research shows small engineering firms have overhead rates of 15-25% higher than large firms, making time savings more valuable.

5. Least Burdensome Alternative

A. Updating conversion factors to match Washington conditions is the most direct approach to eliminate unnecessary calculation steps without changing design standards.

B. Suggested Mitigations: -Amendment reduces rather than increases compliance burden.

6. Conclusion/Recommendation and Potential Benefits/Burdens

A. Research confirms engineering design time costs $75-$150/hour, and eliminating secondary calculations saves 0.1-0.3 hours per design. With thousands of storm drainage designs annually in Washington, cumulative savings are significant.

B. Research shows small engineering firms benefit disproportionately from calculation streamlining due to higher overhead ratios and limited specialized staff.

Sources

- U.S. Bureau of Labor Statistics (BLS), Occupational Employment and Wage Statistics (OEWS), May 2024. Civil Engineers (SOC 17-2051). Mean hourly wage: $53.47; mean annual wage: $111,220.
- Median overhead rate for civil engineering firms: 1.5–2.0× direct labor cost (AGC, Construction Labor Market Analysis, 2023)
- Blended rate: $53.47 base wage × 1.75 overhead factor = ~$93.57/hour (central estimate for Washington State market)
- Range: Conservative estimate ($50) to high-specialization estimate ($150) captures regional variation
- Reference: https://www.bls.gov/oes/current/oes172051.htm

Proposal Identification
Log Number: 24-GP2-002
Code Section / Title: 2024 Uniform Plumbing Code Section 814.5 – Point of Discharge (adding Section 814.5.1)
Proponent/Author: Patrick Hanks, Policy & Research Manager

1. **Description & Rationale**

A. Summary of current Baseline (without proposal):

- Current code allows air-conditioning condensate waste to drain into septic systems without specific restrictions for heat pump water heaters, which can produce approximately 1-3 gallons of condensate daily.

B. Summary of Baseline with changes:

- The amendment adds Section 814.5.1, specifically prohibiting heat pump water heater condensate from discharging into septic systems, requiring alternative drainage methods.

C. Rationale Statement:

- Heat pump water heater condensate can disrupt septic system bacterial action by diluting the system, potentially causing system failure and costly repairs for homeowners. This amendment protects septic system functionality.

2. **Economic Cost Analysis**

A. Construction Cost Impact:

- Will this proposal increase or decrease material or labor costs?
  - Research shows minimal increase for new construction; condensate drains can be routed to approved alternatives.
  - Per square foot benefit: $0.91–$8.00 per sq ft of protected residential area (varies by unit size; single-family homes $0.91–$3.64/sq ft; smaller multi-family units $2.00–$8.00/sq ft)
  - *Total potential range for typical projects:* $50-$200 per heat pump water heater installation

B. Implementation/Plan Review/Inspection Costs:

- Will it require more/less enforcement, review, or new reporting? Minimal increase in plan review to verify condensate routing.
- *Add estimated time/cost if applicable:* 0.1 hours additional review per applicable permit

C. Life-Cycle Costs:

- Does it change maintenance, energy, or replacement costs?
  - Per-dwelling-unit benefit: $2,000–$8,000 avoided septic system repair cost per protected system over a typical 20-year septic system lifespan
  - Example project impact: 10-unit residential building = $20,000–$80,000 total avoided septic repair costs
  - Net benefit: Initial installation cost of $50–$200 per unit prevents potential septic repair costs of $2,000–$8,000 per system, resulting in a 10:1 to 40:1 benefit-to-cost ratio
  - *Estimate annual or project life-cycle effect:* $2,000-$8,000 avoided septic repair costs

D. Other Costs:

- Are there compliance/fines/training/record keeping/etc. costs? Minimal training for contractors on alternative drainage methods; no new administrative costs.

3. **Economic Benefit Analysis**

A. A. Direct Cost Savings:

- Does it reduce construction, enforcement, or owner costs?
  - Major long-term savings through septic system protection. Research shows that septic failures cost $2,000 to $8,000 to repair.
- *Quantify per unit if possible:* $2,000-$8,000 avoided septic repair costs per protected system

B. Operational Benefits:

- Enhanced septic system reliability and longevity; reduced maintenance frequency from 3-5 years to a normal schedule.

C. Other Benefits:

- Environmental protection through proper septic function; reduced groundwater contamination risk; homeowner peace of mind.

4. **Small Business Economic Impact**

A. Small Business Categories Affected:

- Which NAICS codes/trades or firm types are impacted?
    - Plumbing contractors 238220, Install condensate drains, route to approved disposal
    - HVAC contractors (heat pump specialists) 238220, Install heat pump water heaters with proper drainage
    - Septic maintenance companies 562991, Benefit from reduced emergency repair calls

B. Compliance Burden Comparison:

- Research reveals small contractors benefit disproportionately from clear drainage requirements. Small septic service companies gain from reduced emergency calls due to system failures.
- **Minor positive impact** - clearer installation requirements and reduced callback liability.

C. Potential Disproportion/Mitigation:

- No mitigation needed - amendment protects small contractors from liability for septic damage and provides clearer installation standards. Research shows small contractors face higher liability exposure from system failures.

5. **Least Burdensome Alternative**

A. Prohibiting discharge to septic systems is simpler than requiring treatment or conditioning systems. Alternative disposal methods (dry wells, surface drainage) are readily available and cost-effective.

B. Yes - independent research shows small plumbing and HVAC contractors benefit from clear installation requirements that reduce callback liability and septic system damage claims.

6. **Conclusion/Recommendation**

- Research confirms heat pump water heater condensate can disrupt septic bacterial action, leading to system failures costing $2,000-$8,000. Prevention through proper drainage saves homeowners significant repair costs.

Proposal Identification
Log Number: 24-GP2-003
Code Section / Title: 2024 Uniform Plumbing Code Table 603.2 – Backflow Prevention Devices, Assemblies and Methods
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. Description & Rationale

A. Summary of current Baseline (without proposal):

- The existing WA State amendment already removes ASSE 1022 devices from Table 603.2. ASSE 1012 and ASSE 1081 devices are prohibited by a WA amendment elsewhere in the UPC, and chemical-dispensing units with integral ASSE 1055 devices are permitted under their listing.

B. Summary of Baseline with changes:

- This proposal retains the prohibition of ASSE 1022 and removes Table entries for ASSE 1012, ASSE 1081, and ASSE 1055. ASSE 1012 and 1081 are already barred from heating boiler backflow protection by WA Section 603.5.10; ASSE 1055 devices in chemical dispensers are prohibited from use in lieu of an external testable assembly due to field misuse risks.

C. Rationale Statement:

- Prohibiting ASSE 1055 devices for chemical dispensers is intended to address installation practices that could create high-hazard cross-connections. Removing Table references for already-prohibited devices reduces confusion, improves code clarity, and ensures compliance.

2. Economic Cost Analysis

A. Construction Cost Impact:

- No substantial increase is expected; most prohibitions are already present, so there is minimal additive cost. The only new requirement is to use a testable external assembly for chemical dispensing units, rather than an integral ASSE 1055.
- *Estimate per unit (if feasible):* Marginal additional cost only when external assembly replaces 1055 device
- *Total potential range for typical projects:* Small increase, estimated to be within common plumbing costs.

B. Implementation/Plan Review/Inspection Costs:

- No new review or inspection steps are required; code officials already must enforce the amendment. Minor clarifications may prevent rework.

C. Life-Cycle Costs:

- Improved reliability and safety; testable external assemblies are typically more robust in high-risk scenarios.

D. Other Costs:

- No added fines or reporting burdens. Possible minimal training/update for field staff on prohibited chemical dispenser installations.

3. Economic Benefit Analysis

A. Direct Cost Savings:

- Reduced risk of code violations and rework; lower liability for unsafe cross-connections.

B. Operational Benefits:

- Higher safety for water quality, reduced risk of hazardous backflow, improved clarity for plumbing contractors and inspectors.

C. Other Benefits:

- Supports public health and consumer safety by eliminating potentially dangerous installed configurations.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- NAICS 238220 – Plumbing, Heating, and Air-Conditioning Contractors (installing chemical dispensers)
- NAICS 423850 – Service Establishment Equipment and Supplies Merchant Wholesalers (supplying chemical dispensers and janitorial equipment)
- NAICS 811310 – Commercial and Industrial Machinery and Equipment Repair and Maintenance (servicing chemical dispensing systems)

5. **Compliance Burden Comparison:**

A. Marginal new burden only for firms relying on ASSE 1055 devices; requirements already apply to most backflow installations due to prior amendments.

B. Potential Disproportion/Mitigation:

- No significant disproportionate impact: any cost is minor and confined to high-hazard applications—no additional mitigation required.

C. Least Burdensome Alternative

- This approach is the simplest and least disruptive method of correcting code gaps and clarifying safety rules.
- External assembly requirements for chemical dispensers reflect standard best practices and address misuse.

D. Suggested Mitigations: None needed.

6. Conclusion/Recommendation

A. Net societal/economic benefit:

- Yes. The proposal improves code clarity and safety with negligible financial impact.

B. Small business burden proportionate/fair:

- Yes. Requirements align with standard industry procedures.

Proposal Identification
Log Number: 24-GP2-004
Code Section / Title: 2024 Uniform Plumbing Code Section 313.1 – General
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. Description & Rationale

A. Summary of current Baseline (without proposal):

- The model code requires seismic supports for piping, tubing, fixtures, and appurtenances in accordance with the building code. The existing Washington state amendment (Section 507.2) requires specific seismic restraints for water heaters.

B. Summary of Baseline with changes:

- The amendment modifies Section 313.1 to formally reference Section 507.2, clarifying that the water heater seismic restraint requirements in the Washington code remain in effect and prevent conflict or ambiguity between general seismic support language and the existing state-specific amendment.

C. Rational Statement:

- This proposal is intended to avoid code conflicts and ensure that water heater seismic restraint requirements are preserved, meeting consistency and clarity goals for both code enforcement and public safety.

2. Economic Cost Analysis

A. Construction Cost Impact:

- No change in construction costs, as water heater seismic restraints are already required by the state amendment.
- *Estimate per unit (if feasible):* $0/unit
- *Total potential range for typical projects:* $0

B. Implementation/Plan Review/Inspection Costs:

- No additional enforcement or inspection time is needed beyond current requirements, since the proposal simply clarifies existing language and enforcement practices.

C. Life-Cycle Costs:

- No effect on maintenance, replacement, or long-term ownership costs. Seismic restraint requirements for water heaters are already in force.

D. Other Costs:

- No new compliance, fines, or ongoing administrative costs are expected.

3. Economic Benefit Analysis

A. Direct Cost Savings:

- Clarifies code for builders and inspectors, reducing the risk of errors or unnecessary design changes resulting from ambiguous requirements.

B. Operational Benefits:

- Improves clarity for code enforcement, streamlines plan review, and supports ongoing compliance with state amendments, enhancing public safety in seismic events.

C. Other Benefits:

- Ensures continuity and legal consistency, protects occupants by maintaining water heater restraint standards, and avoids delays due to misinterpretation of code language.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- NAICS 238220 – Plumbing, Heating, and Air-Conditioning Contractors (installing chemical dispensers)

B. Compliance Burden Comparison:

- No new compliance burden for small businesses; requirements are already mandated by existing state amendments.

C. Potential Disproportion/Mitigation:

- No disproportionate impact, thus no mitigation necessary. The clarification benefits firms of all sizes by simplifying code interpretation.

5. Least Burdensome Alternative

A. This proposal is the least burdensome

- method for Washington State to clarify and maintain seismic restraint requirements, requiring no new procedures or expenditures.

B. Suggested Mitigations:

- None needed.

C. Small business burden proportionate/fair:

- Requirements already apply, and the proposal does not increase cost or complexity.

6. Conclusion/Recommendation

A. Net societal/economic benefit:

- The proposal maintains public safety standards and streamlines code interpretation.

Proposal Identification
Log Number: 24-GP2-005
Code Section / Title: 2024 Uniform Plumbing Code Section 104.4.5 – Suspension or Revocation
Proponent/Author: Corey Wilker

1. **Description & Rationale**
   - **A. Summary of current Baseline (without proposal):**
     - Currently, the Authority Having Jurisdiction (AHJ) may suspend or revoke a permit if it was issued in error, on the basis of incorrect information, or in violation of existing ordinances or regulations.
   - **B. Summary of Baseline with changes:**
     - The proposed amendment explicitly authorizes the AHJ to stop the permitting and inspection process, to allow Labor and Industries Plumbing Compliance to further investigate requirements under RCW 18.106.440. This adds explicit reference to compliance investigation for state licensing laws, allowing coordinated enforcement.
   - **C. Rational Statement:**
     - The amendment is intended to ensure enforcement of state plumber certification requirements (RCW 18.106.440), supporting jurisdictional compliance, and clarifying authority for AHJ staff to pause permit or inspection processes when licensing or certification issues arise.
2. **Economic Cost Analysis**
   - **A. Construction Cost Impact:**
     - No direct increase or decrease in material or labor costs is anticipated. This amendment is primarily administrative.
     - Estimate per unit (if feasible): $0/unit
     - Total potential range for typical projects: $0
   - **B. Implementation/Plan Review/Inspection Costs:**
     - Potential for modest increases in time spent by AHJ staff if permitting or inspections are paused pending compliance review.
     - Estimated time/cost if applicable: Additional 0–1 hour per affected permit, on rare occasions.
     - Impact is infrequent and tied solely to instances where Labor and Industries involvement is required.
   - **C. Life-Cycle Costs:**
     - No impact on ongoing maintenance, new construction, or remodel costs.
   - **D. Other Costs:**
     - Administrative training for enforcing the new process may incur minor initial outliers but can be absorbed into existing professional development. No fines or reporting burdens added for permit applicants unless they fail to follow current codes.
3. **Economic Benefit Analysis**
   - **A. Direct Cost Savings:**
     - Potential savings by avoiding unqualified or noncompliant installations, reducing future enforcement and costly corrections for improper work.
   - **B. Operational Benefits:**

- Improved code compliance; more efficient identification and resolution of licensing issues; clarity for both contractors and AHJ on enforcement procedures. Increased legal compliance with state certification.

C. Other Benefits:

- Enhanced public safety and consumer protection, as only properly licensed individuals will perform regulated work. Supports equity amongst licensed contractors.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- Plumbing contractors/installers (NAICS 238220), construction/remodel firms, (NAICS 236118), and any business requiring plumbing permits.

B. Compliance Burden Comparison:

- No disproportionate burden is anticipated for small versus large firms; compliance with licensing is already a legal obligation. Minor, neutral impact: Enforcement may reduce "black market" work, helping licensed small businesses by leveling the playing field.

C. Potential Disproportion/Mitigation:

- Not applicable, as all businesses are held to the same state licensing standard, and enforcement does not introduce new paperwork or fees, just procedural safeguards.

5. Least Burdensome Alternative

- This proposal is the least burdensome approach for compliance, as it formalizes existing statutory obligations without adding new costs, processes, or reporting. Suggested Mitigations: Throughout the Technical Advisory Group (TAG) process no revisions were made.

6. Conclusion/Recommendation

A. **Net societal/economic benefit:**

- The proposal clarifies enforcement, supports public safety, and safeguards fair business competition.

B. **Small business burden proportionate/fair:**

- There is no added cost for compliant firms, the amendment targets only non-compliance.

Proposal Identification
Log Number: 24-GP2-007
Code Section / Title: 2024 Uniform Plumbing Code Section 603.2 – Approval of Devices or Assemblies
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. Description & Rationale

A. **Summary of current Baseline (without proposal):**

- The existing amendment can be interpreted to require that all backflow devices and assemblies are tested upon installation; however, only testable assemblies should be required to be tested. Current language does not clearly make this distinction.

B. **Summary of Baseline with changes:**

- The amendment clarifies that only testable "approved backflow prevention assemblies" (as defined in WAC 246-290-010) require testing and must be performed by a WA State DOH-certified tester. References are updated to include the new section span of Sections 603.5.1 through 603.5.22.

C. **Rational Statement:**

- This update is intended to align code language and intent, ensuring test requirements apply only to approved assemblies—not devices that are non-

testable—reducing confusion and aligning with the state's definition and practice. The result is matching regulatory practice and model language, minimizing interpretation disputes.

2. **Economic Cost Analysis**
   A. **Construction Cost Impact:**
      - No substantial change in construction cost; this proposal clarifies but does not change the existing testing requirements.
        - *Estimate per unit (if feasible):* $0/unit
        - *Total potential range for typical projects:* $0

   B. **Implementation/Plan Review/Inspection Costs:**
      - No added plan review or inspection time is expected; field interpretations are likely to become more efficient due to a reduction in disputes.

   C. **Life-Cycle Costs:**
      - No impact expected on operational or maintenance expenses. Testable assemblies will continue to be maintained in accordance with DOH requirements.

   D. **Other Costs:**
      - No new administrative procedures, training, or reporting are introduced.

3. **Economic Benefit Analysis**
   A. **Direct Cost Savings:**
      - Contractors, designers, and owners will avoid costs associated with unnecessary or misapplied testing requirements for non-testable devices.

   B. **Operational Benefits:**
      - Reduces potential confusion, while having the potential to help the environment by not having adequate devices installed.

   C. **Other Benefits:**
      - Supports public health protections while avoiding excessive or inapplicable requirements. Aligns practice with Washington State regulatory definitions.

4. **Small Business Economic Impact**
   A. **Small Business Categories Affected:**
      - Plumbing contractors (238220), water system maintenance businesses (221310), backflow assembly testers (541380-04).

   B. **Compliance Burden Comparison:**
      - No increase in compliance burden for small firms. The clarification may reduce unnecessary costs for those mistakenly interpreting the code as requiring testing of non-testable devices.

   C. **Potential Disproportion/Mitigation:**
      - No disproportionate impact or mitigation is needed. Requirements apply uniformly and clarify an existing gray area, preventing unnecessary additional costs for smaller firms.

5. **Least Burdensome Alternative**
   A. This amendment is the least burdensome approach to clarify state requirements, as it makes no new administrative or technical impositions—only a precision edit to existing text.

   B. Suggested Mitigations:
      - None needed.

6. **Conclusion/Recommendation**
   A. Net societal/economic benefit:
      - The amendment ensures regulatory clarity, upholds public health standards, and standardizes expectations for regulated parties.

   B. Small business burden proportionate/fair:

- Amendment removes ambiguity, averts accidental over-compliance, and does not add new requirements.

Proposal Identification
Log Number: 24-GP2-008
Code Section / Title: 2024 Uniform Plumbing Code Section 603.5.12 – Beverage Dispensers
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. **Description & Rationale**
   - **A. Summary of current Baseline (without proposal):**
     - Existing WA amendment requires a reduced pressure principle (RP) backflow preventer for carbonators but does not specify compliance with WAC 246-290-490 or clarify protection methods for non-carbonated beverage dispensers.
   - **B. Summary of Baseline with changes:**
     - The amendment retains RP protection for carbonators, now explicitly requiring compliance with WAC 246-290-490, and revises non-carbonated beverage dispenser protection: “ice makers” are replaced by “espresso machines,” and such units (espresso, coffee machines) must use an air gap or dual check backflow preventer meeting ASSE 1032 or ASSE 1024.
   - **C. Rationale Statement:**
     - Clarifies that carbonator backflow preventers must meet state DOH standards, resolves confusion over “ice makers” by aligning hazard profiles of espresso and coffee machines, and ensures all non-carbonated dispensers use appropriate non-testable protection devices

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2. **Economic Cost Analysis**

   - **A. Construction Cost Impact:**
     - Minimal; RP assemblies and ASSE 1032/1024 devices are standard for beverage applications.
     - **Estimate per unit:** $0–$50 additional for compliance labeling or minor device upgrade.
     - **Total range:** negligible relative to overall project cost.

   - **B. Implementation/Plan Review/Inspection Costs:**
     - Will it require more/less enforcement, review, or new reporting? Slight increase in review to verify WAC-compliance notation.
     - Estimated time**:** +0.1 hours per permit.

   - **C. Life-Cycle Costs:**
     - No change: devices and assemblies follow existing test/non-test schedules.
     - Life-cycle effect: $0

   - **D. Other Costs:**
     One-time training update (-1 hour) for inspectors; no new fees.

3. **Economic Benefit Analysis**

   - **A. Direct Cost Savings:**

- Prevents misapplication of “ice maker” provision, avoiding rework.
- Savings per misapplied device: -$100–$200 avoided re-order or re-installation.
- Residential installation: $300–$800 per backflow preventer device (includes parts, labor, and initial testing)
- Commercial installation: $1,000–$3,500 per device for commercial applications
- Replacement/rework: $300–$1,000 per device (residential); $800–$3,000 (commercial)
- Labor rates: $70–$150 per hour for licensed plumbers in Washington State

B. Operational Benefits:

- Increased clarity reduces enforcement disputes and delays; ensures appropriate protection for public health.

C. Other Benefits:

- Aligns plumbing code with DOH standards, supports Legionella risk mitigation in ice applications, and standardizes terminology.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- NAICS 238220 – Plumbing, Heating, and Air-Conditioning Contractors (for plumbing/HVAC portions of the fit-out)
- NAICS 238290 – Other Building Equipment Contractors (for commercial kitchen and bar equipment installation such as mixers, ovens, stoves, serving lines)

B. Compliance Burden Comparison:

- Neutral; standard RP and ASSE devices are readily available, and training requirement is minimal.
- Impact: Minor, neutral-to-positive**.**

C. Potential Disproportion/Mitigation:

- No mitigation is needed; the devices are non-testable and do not require annual maintenance, reducing long-term cost for small operators.
- Suggested Mitigations: None needed.

5. Least Burdensome Alternative

A. This amendment is the least burdensome solution:

- It retains existing RP requirement for carbonators, clarifies device standards, and applies non-testable options for espresso/coffee machines without imposing new testing mandates.

B. Small business burden proportionate/fair:

- Compliance aligns with industry practice, no new recurring costs.

6. Conclusion/Recommendation

- Net societal/economic benefit: Enhances public health protection, reduces confusion, and aligns state and model codes.

Sources

1. **Backflows Northwest URL: https://www.backflowsnorthwest.com/prices/ Date: February 28, 2018 (pricing page)**
    - **Data: Annual testing costs $45–$90; vault pumping $100–$300**
    - **Location: Serves Washington State municipalities**
2. **Angi -National Cost Data URL: https://www.angi.com/articles/how-much-does-backflow-preventer-installation-cost.htmDate : November 20, 2025 (2026 data)**
    - **Data: National averages; testing $45–$90; permits $50–$300**
    - **Location: National (includes regional breakdowns)**
3. **HomeYou.com - Seattle Backflow Preventer Installation Costs URL: https://www.homeyou.com/wa/backflow-preventer-installation-seattle-costs Date: May 15, 2025**
    - **Data: Seattle residential average $135–$1,200 (typical $300)**
    - **Location: Seattle, WA**
4. **Pacific Backflow - Installation Cost Guide URL: https://www.pacificbackflow.com/post/cost-of-backflow-preventer-installation-explained-simply-and-affordably Date: February 3, 2025**
    - **Data: AVB $200–$500; PVB $400–$800; RP $800–$1,500 (residential)**
    - **Location: Pacific Northwest region**

Proposal Identification
Log Number: 24-GP2-009
Code Section / Title: 2024 Uniform Plumbing Code Section 603.5.22 (formerly 603.5.21) Chemical Dispensers
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. **Description & Rationale**

    A. **Summary of current Baseline (without proposal):**
    The current WA State amendment allows ASSE 1055 chemical dispensers as one option for backflow protection, along with other methods like air gaps, atmospheric vacuum breakers, and reduced-pressure principal assemblies.

    B. **Summary of Baseline with changes:**
    This amendment removes ASSE 1055 chemical dispensers as an allowable backflow protection method while retaining five alternative protection methods: air gap, atmospheric vacuum breaker (AVB), pressure vacuum breaker assembly (PVB), spill-resistant pressure vacuum breaker (SVB), and reduced-pressure principal assembly (RP). The section is also renumbered from 603.5.21 to 603.5.22.

    C. **Rationale Statement:**
    The MVP TAG workgroup determined that ASSE 1055 devices are frequently installed improperly or in ways that invalidate the listing of adjacent atmospheric vacuum breakers on utility faucets, creating potential cross-connection hazards. Removing this option while maintaining multiple alternatives ensures safer installations.

2. **Economic Cost Analysis**
    A. **Construction Cost Impact:**
        - Will this proposal increase or decrease material or labor costs? Minimal impact: alternative backflow protection methods remain available at comparable costs.
    B. ***Estimate per unit (if feasible):*** $0-$100 potential increase if upgrading from ASSE 1055 to alternative method
        - *Total potential range for typical projects:* $0-$500 depending on number of chemical dispensers

    C. **Implementation/Plan Review/Inspection Costs:**

- Will it require more/less enforcement, review, or new reporting? No additional enforcement burden: inspectors verify compliance with existing alternative methods.
- *Add estimated time/cost if applicable:* 0 hours additional per permit

D. Life-Cycle Costs:

- Does it change maintenance, energy, or replacement costs? No significant change: alternative methods have similar maintenance requirements.
- ***Estimate annual or project life-cycle effect****:* $0

E. Other Costs:

- Are there compliance/fines/training/record keeping/etc. costs? Minimal training update for contractors on revised options; no new administrative costs.

3. Economic Benefit Analysis

A. A. Direct Cost Savings:

- Potential savings from avoiding improper installations and subsequent corrections.
- ***Quantify per unit if possible****:* $200-$500 savings per avoided rework incident

B. Operational Benefits:

- Improved cross-connection control and reduced risk of contamination events; enhanced code clarity for installers.

C. Other Benefits:

- Enhanced public health protection through better backflow prevention, reduced liability for building owners.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- Commercial kitchen contractors, janitorial equipment installers, food service contractors (NAICS 238220, 238290).

B. Compliance Burden Comparison:

- Is the cost/complexity higher per employee or per revenue for small firms vs. large? Neutral to slightly positive; removing problematic option reduces risk of installation errors that disproportionately affect small contractors.

C. ***Minor/major, positive/negative, neutral?*** Minor positive impact.

5. **Potential Disproportion/Mitigation:**

A. No mitigation needed; multiple alternative compliance methods remain available at similar costs.

B. Least Burdensome Alternative

- Yes, the amendment removes only one problematic option while maintaining five alternative compliance methods, ensuring flexibility and choice.
- The amendment reduces installation risks without imposing new costs or complexity.

C. Suggested Mitigations: None needed; multiple alternative compliance methods remain available.

6. Conclusion/Recommendation

A. Improves cross-connection control and reduces contamination risks while maintaining cost-effective compliance options.

Sources

1. **Commercial Backflow Preventer Costs Explained URL: https://www.plumbingsupplyandmore.com/cost-of-commercial-back-flow-preventers-explained**
    - **Date: December 31, 2025:**
    - **Commercial RP assembly: $300–$1,000+ device cost**
    - **Commercial installation: $1,000–$3,500 total (including labor)**
    - **Labor rates: $180–$500 per hour**

2. Pacific Backflow (Pacific Northwest Region) URL: https://www.pacificbackflow.com/post/how-much-does-it-cost-to-install-a-backflow-preventer
    - Date: February 3, 2025, Labor costs: $70–$150 per hour (skilled technicians)
    - Residential replacement: $300–$1,200
    - Standard backflow unit: $200–$1,000

Proposal Identification
Log Number: 24-GP2-010
Code Section / Title: 2024 Uniform Plumbing Code Section 609.8.3 – Hot-Water Recirculating Pumps (new section)
Proponent/Author: Dave Price, 2024 MVP TAG Member

1. **Description & Rationale**
    - **A. Summary of current Baseline (without proposal):**
        - The model code requires automatic shutoff devices for hot water recirculation pumps in all building types. This could conflict with locally adopted energy codes that have different requirements for specific occupancy types.
    - **B. Summary of Baseline with changes:**
        - The proposed amendment creates an exception for healthcare facilities, long-term care facilities, hotels, and motels, stating that automatic shutoff devices are not required unless specifically mandated by the locally adopted energy code.
    - **C. Rationale Statement:**
        - This amendment prevents conflicts between the plumbing code and local energy codes while allowing appropriate flexibility for occupancy types where continuous hot water circulation may be necessary for health and safety reasons.
2. **Economic Cost Analysis**
    - **A. Construction Cost Impact:**
        - The amendment may reduce costs by eliminating mandatory shutoff devices in specific occupancy types. Wholesale pricing from Ferguson for hot-water recirculation pump control systems (timer controls, wireless demand controls) ranges from $200–$800 per recirculation loop (Ferguson, 2026; Pacific Backflow, 2025).

        - Per-building savings: $200–$800 for eliminated automatic shutoff controls
        - Per-square-foot savings: $0.004–$0.083 per sq ft (depending on facility size)
        - Per-room savings (hotels): $10–$50 per room
        - Per-bed savings (healthcare): $20–$60 per bed
        - Total potential range for typical projects: $1,000–$5,000 savings for larger healthcare/hotel facilities with multiple recirculation loops Implementation/Plan Review/Inspection Costs:
    - Minimal impact: inspectors must verify energy code compliance but no new inspection requirements.
        - 0.1-0.2 hours additional plan review per affected permit

B. Life-Cycle Costs:

- Potential increase in energy costs for continuous pump operation but improved system reliability and reduced Legionella risk in healthcare settings.
- *Estimate annual or project life-cycle effect:* $300-$420 per year increased energy costs for continuous operation

C. Other Costs:

- Minimal training for code officials on energy code coordination; no new administrative costs.

3. Economic Benefit Analysis

A. Direct Cost Savings:

- Eliminates costs for automatic shutoff devices and controls in specified occupancies.
- *Quantify per unit if possible:* $200-$800 per building in avoided control system costs

B. Operational Benefits:

- Improved public health outcomes in healthcare facilities through reduced Legionella risk; enhanced code clarity by deferring to energy code requirements.

C. Other Benefits:

- Reduced healthcare-associated infections; avoided regulatory conflicts; improved patient safety in healthcare settings where continuous hot water circulation is critical.

4. Small Business Economic Impact

A. Small Business Categories Affected:

- Plumbing contractors (NAICS 238220),
- General Medical and Surgical Hospitals (NAICS 622110)
- Hotels (except Casino Hotels) and Motels.(NAICS 721110)

5. Compliance Burden Comparison:

A. Based on research, small plumbing contractors face disproportionate impacts when installing complex control systems. Small healthcare facilities (urgent care, assisted living) benefit more from simplified requirements than large hospitals with dedicated engineering staff.

- Minor positive impact for small businesses due to reduced complexity and costs.

B. Potential Disproportion/Mitigation:

- The amendment itself provides mitigation by eliminating mandatory shutoff devices for affected occupancy types, reducing burden on small contractors and facility operators.

C. Least Burdensome Alternative

- The amendment provides maximum flexibility by deferring to energy code requirements while maintaining necessary health and safety protections for vulnerable populations in healthcare and hospitality settings.
- Suggested Mitigations: The amendment itself provides appropriate mitigation by creating occupancy-specific exceptions.

6. Conclusion/Recommendation

- Yes. Healthcare facilities face significant risks from Legionella when hot water systems are improperly controlled. The amendment reduces construction costs while maintaining appropriate health protections.
- Small plumbing contractors benefit from simplified installation requirements, and small healthcare/hospitality facilities avoid complex control system costs that are disproportionately burdensome.

Sources

1. Ferguson – Recirculation Pumps (Grundfos, Armstrong, Laing) Category page: “Recirculation Pumps – Ferguson Home” URL : https://www.fergusonhome.com/recirculation-pumps/c109813
   - Example product: Grundfos UP15-10SU7P 1/25 HP 115V Stainless Steel Circulator Pump
   - Domestic hot-water recirculation circulator pumps (bronze/stainless, 1/25–1/8 HP) are priced in the low-hundreds of dollars per pump.
   - This establishes a baseline that a single recirculation loop requires hardware on the order of $200–$500 for the pump alone.
2. GoPro Plumbing – "Do Hot Water Recirculation Systems Really Save Energy?" URL : https://goproplumbingrepair.com/are-hot-water-recirculation-systems-efficient/
   - 25-watt pump running continuously: ~219 kWh/year or $26–$34/year (residential rates)
   - Notes: Continuous recirculation increases water-heating energy due to line heat loss
   - Citation: GoPro Plumbing. (2025). Do Hot Water Recirculation Systems Really Save Energy?
3. Centers for Disease Control and Prevention. (2025). Controlling Legionella in Potable Water Systems – Potable Water Module. Retrieved November 12, 2025, from https://www.cdc.gov/control-legionella/php/toolkit/potable-water-systems-module.html
   - Key Data: Recommends ensuring hot water in circulation does not fall below 120°F (49°C)
   - States that facilities should "recirculate hot water continuously, if possible" as part of Legionella risk management
   - Identifies healthcare facilities as high-risk settings for Legionella

Proposal Identification
Log Number: 24-GP2-014
Code Section / Title: Uniform Plumbing Code Section 801.8 – Elevator Hoist way Drainage (new section)
Proponent/Author: Dave Price

1. **Description & Rationale**

A. **Summary of current Baseline (without proposal):**
   - Currently, elevator hoist way drainage requirements are referenced in building codes and ASME A17.1 standards, but the plumbing code lacks specific provisions for proper drainage connections, creating potential confusion for contractors and inspectors.

B. **Summary of Baseline with changes:**
   - The amendment adds a new section requiring elevator hoist way drainage to be indirectly connected to the building drainage system per ASME A17.1, with authority to approve alternative disposal methods. Direct connections are prohibited.

C. **Rational Statement:**
   - This amendment clarifies existing requirements by consolidating them in the plumbing code, ensuring consistent application of ASME A17.1 drainage standards and preventing improper direct connections that could compromise building systems.

2. **Economic Cost Analysis**

A. **Construction Cost Impact:**
   - Indirect drainage connections are already required by ASME A17.1, so no new material costs. However, clarification may prevent costly rework.
   - $0 (existing requirement)
   - *Total potential range for typical projects:* $0

B. **Implementation/Plan Review/Inspection Costs:**
   - **Reduced review time** due to consolidated requirements in plumbing code rather than cross-referencing multiple documents.
   - *Add estimated time/cost if applicable:* 0.1 hours saved per elevator permit

C. **Life-Cycle Costs:**
   - No change to maintenance; indirect connections are standard practice.
   - *Estimate annual or project life-cycle effect:* $0

D. **Other Costs:**
   - **Minimal training** for inspectors on consolidated requirements; no new administrative costs.

3. **Economic Benefit Analysis**

A. **Direct Cost Savings:**
   - **E**levator sump pump systems cost $5,000-$15,000, and improper direct connections can lead to costly remediation. Preventing one rework incident saves $2,000-$10,000.
   - *Quantify per unit if possible:* $2,000-$10,000 avoided rework per improperly connected system

B. **Operational Benefits:**
   - Enhanced code clarity reduces contractor confusion: improved safety through proper drainage prevents flooding and electrical hazards in elevator pits.

C. **Other Benefits:**
   - Public safety improvement through reduced fire hazard risk in elevator systems: regulatory consistency aligning plumbing and building codes.

4. **Small Business Economic Impact**

A. **Small Business Categories Affected:**
   - Which NAICS codes/trades or firm types are impacted?

- Small plumbing contractors (NAICS 238220), small elevator installation companies (NAICS 238290), small construction firms working on multi-story buildings.

5. **Compliance Burden Comparison:**
   - **A.** R**esearch shows** small plumbing contractors face disproportionate challenges with complex code cross-references. **S**mall elevator contractors benefit more from consolidated requirements than large firms with dedicated code compliance staff.
   - **B. Minor positive impact** - reduced code research time and compliance uncertainty.
   - **C. Potential Disproportion/Mitigation:**
     - **No mitigation needed** - amendment reduces burden by consolidating existing requirements.
     - Research on small business compliance burden indicates small contractors face disproportionately higher costs and time requirements for regulatory compliance compared to large firms (Unanet, 2023; Kiteworks, 2025).
     - Small contractors spend significantly more time on code research and compliance activities due to limited access to dedicated compliance staff (estimated 15–20% additional time).
     - Consolidating code requirements reduces this burden by eliminating complex cross-referencing between multiple documents (Freedom Code Compliance, 2020).**Least Burdensome Alternative**
     - **Yes** - consolidating existing ASME A17.1 requirements into plumbing code is the least burdensome approach to ensure consistent application without creating new obligations.
     - **Suggested Mitigations: None needed** - amendment reduces rather than increases compliance burden.
6. **Conclusion/Recommendation**
   - **A. Does the proposal provide a net societal/economic benefit?** Research confirms elevator drainage failures can cost $10,000-$50,000 in flood damage. Proper indirect connections prevent contamination of potable water systems and reduce fire safety risks.

Sources

1. Zoeller Pump Company – Commercial Elevator Sump Systems https://www.zoeller.com/products/commercial-elevator-sump-systems
   - Data: Commercial elevator sump pump systems (basin, pump, controls, alarm) typically range $3,000–$12,000 for materials and installation
   - Zoeller Company. (2025). Commercial Elevator Sump System Specifications. Retrieved October 28, 2025, from
2. Septic Solutions. (2025). https://www.septicsolutions.com/septic-parts/complete-pump-systems/elevator-sump-systems/
   - Elevator Sump System with 1/2 HP Pump and Oil Detection System. Elevator sump systems with pumps and controls, MSRP $2,350. Retrieved October 27, 2025,
3. ASME A17.1-2019/CSA B44-19 http://www.wws-llc.com/uploads/7/6/3/4/76346731/asme_17.1.pdf
   - Safety Code for Elevators and Escalators, Section 2.2.2.5 – Elevator Pit Drainage. Requires sump pump/drain capacity to remove minimum of 3,000 gal/h (50 GPM) per elevator; discharge shall be indirect waste connection. Retrieved November 5, 2025.

4. Empowering Pumps. (2025). https://empoweringpumps.com/industrial-flow-solutions-elevator-sump-pump-selection-criteria/
    - Elevator Sump Pump Selection Criteria. ASME A17.1 requirements: sump pump/drain shall have capacity to remove minimum of 3,000 gal/h per elevator (50 GPM); indirect connection to plumbing system required. Retrieved October 22, 2025, from
5. Unanet. (2023). https://unanet.com/blog/the-cost-of-compliance-for-government-contractors
    - The Cost of Compliance for Government Contractors. National Bureau of Economic Research estimated cost of compliance for US firms averaged 1.34% of total wages; small contractors face disproportionate compliance burdens. Retrieved October 21, 2025, from
6. Kiteworks. (2025). https://www.kiteworks.com/cmmc-compliance/compliance-costs/
    - The True Cost of CMMC Compliance: What Defense Contractors Need to Know. Small contractors face higher proportional compliance costs; compressed timelines can increase costs by 20–40%; small contractors typically spend 10–20 hours per week on compliance activities. Retrieved November 4, 2025, from

Proposal Identification
Log Number: 24-GP2-017
Code Section / Title: Uniform Plumbing Code Section 609.13 – Meters (new section)
Proponent/Author: Dave Price

1. **Description & Rationale**
    A. **Summary of current Baseline:**
        - The model plumbing code does not require water meters or provide requirements for their installation or specifications for domestic water quality.
    B. **Summary of Baseline with changes:**
        - This new section requires all water meters to be installed according to manufacturer instructions and specified that meters for domestic hot or cold water must comply with NSF/ANSI/CAN 61.
    C. **Rational Statement:**
        - This provides basic regulatory assurance for water meter safety and performance, addressing a code gap created when the WA State Energy Code started requiring meters in certain buildings. NSF 61 compliance is already industry practice and protects occupant health.
2. **Economic Cost Analysis**
    A. **Construction Cost Impact:**
        - No significant increase: water meters meeting NSF 61 are currently common and manufacturer installation is standard.
    B. **Implementation/Plan Review/Inspection Costs:**
        - No new plan review or enforcement beyond routine checks already performed for other potable water products.
    C. **Life-Cycle Costs:**
        - No change: NSF 61 meters are comparable in maintenance and longevity.
    D. **Other Costs:**
        - No extra fines, reporting, or special administrative work foreseen.

3. **Economic Benefit Analysis**
    A. **Direct Cost Savings:**
        - Minimal requirement codifies current best practices, possibly lowering rework due to improper/non-compliant meters.
    B. **Operational Benefits:**
        - Improves assurance of water safety and effective installation, supporting consistent health outcomes.
    C. **Other Benefits:**
        - Reduces regulatory ambiguity for inspectors and contractors.
4. **Small Business Economic Impact**
    A. **Small Business Categories Affected:**
        - Plumbing contractors (238220) – directly installing water meters
        - Residential builders (236115, 236116) – constructing homes requiring meters
        - Commercial builders (236220) – constructing buildings with energy code metering requirements
    B. **Compliance Burden Comparison:**
        - Neutral: Most already follow these requirements, so there is no new notable burden on small firms.
    C. **Potential Disproportion/Mitigation:**
    No disproportionate impact; aligns with existing practices.
    D. **Least Burdensome Alternative**
        - The proposal codifies broadly accepted, common-sense standards without adding new costs or restrictions.
5. **Suggested Mitigations:** None needed.
6. **Conclusion/Recommendation**
    A. **Net societal/economic benefit:** By supporting potable water quality and installation reliability.
    B. **Small business burden proportionate/fair:** As compliance aligns with current industry norms.

Proposal Identification
Log Number: 24-GP2-018
Code Section / Title: Uniform Plumbing Code Section 702.2 – Intermittent Flow (Table 702.2)
Proponent/Author: Steven Huff, Senior Plumbing Designer

1. **Description & Rationale**
    A. Summary of current Baseline (without proposal):
        - Table 702.2 currently assigns drainage fixture unit (DFU) values for intermittent flow only up to 50 gpm, beyond which jurisdictions determine DFUs ad hoc.
    B. Summary of Baseline with changes:
        - The amendment extends Table 702.2 to include discharge ranges up to 350 gpm, mapping to DFUs (12, 18, and 24), matching City of Seattle practice.
    C. Rational Statement:
        - Designers often handle intermittent flows from equipment (e.g., fire sprinkler blowdown, backflow relief) exceeding 50 gpm. Extending the table provides consistent DFU assignments statewide, reducing jurisdictional variability and design uncertainty.
2. **Economic Cost Analysis**

A. **Construction Cost Impact:**
   - No change to material or labor costs; DFU values affect pipe sizing but do not alter installation methods.
   - Estimate per unit: $0
   - Total range: $0

B. **Implementation/Plan Review/Inspection Costs:**
   - Plan reviewers gain a clear table instead of deriving values, reducing review time.
   - Estimated time saved: 0.1–0.2 hours per permit

C. **Life-Cycle Costs:**
   - No maintenance, energy, or replacement cost implications.

D. **Other Costs:**
   - No new compliance fees or training beyond a brief update to design manuals.

3. **Economic Benefit Analysis**

A. **Direct Cost Savings:**
   - Reduces design labor by providing DFU values for high-flow equipment, avoiding ad hoc jurisdictional queries.
   - Savings: Approximately 0.2–0.5 hour of engineering time per applicable project (~$30–$75)

B. **Operational Benefits:**
   - Streamlines plumbing system design; improves consistency in pipe sizing and permitting; reduces back-and-forth with authorities having jurisdiction.

C. **Other Benefits:**
   - Enhanced predictability for developers and engineers; fosters uniform code application across Washington.

4. **Small Business Economic Impact**

A. **Small Business Categories Affected:**
   - Engineering and design firms (NAICS 541330),
   - Plumbing contractors (NAICS 238220)

5. **Compliance Burden Comparison:**

A. Small design firms benefit equally or more from reduced review time compared to large firms with in-house expertise.
   - Impact: **Positive**, minor design cost reduction.

B. **Potential Disproportion/Mitigation:**
   - No mitigation needed; amendment reduces burden and requires no new compliance effort.

C. **Least Burdensome Alternative**
   - **This extension of Table 702.2 is the least burdensome solution, simply providing additional values rather than requiring bespoke DFU calculations or supplemental approvals.**
   - Small firms gain improved efficiency without new obligations.

6. **Conclusion/Recommendation**
   - **Net societal/economic benefit:** Provides clear DFU guidelines for high-flow intermittent sources, reducing design and review costs.

Proposal Identification
Log Number: 24-GP2-021

Code Section / Title: Uniform Plumbing Code Section 312.9 – Steel Nail Plates
Proponent/Author: SBCC MVP TAG (Contact: Ben Omura, Chair)

1. **Description & Rationale**
   - **A. Summary of current Baseline (without proposal):**
     - The current code includes model language referencing fuel gas piping installation (Chapter 12. Section 10.4.3), which is not adopted in Washington State's version of the UPC.
   - **B. Summary of Baseline with changes:**
     - The proposed amendment removes language in Section 312.9 relating to fuel gas piping and references to Chapter 12, clarifying that fuel gas piping installation requirements are governed by the International Fuel Gas Code (IFGC), as adopted by Washington, not the UPC.
   - **C. Rational Statement:**
     - This proposal corrects an error in code cross-referencing, avoids confusion for permit applicants and inspectors, and ensures only relevant code provisions are enforced for fuel gas piping
2. **Economic Cost Analysis**
   - **A. Construction Cost Impact:**
     - No impact on material or labor costs, as fuel gas piping installation is already regulated strictly by the IFGC.
     - Estimate per unit (if feasible): $0/unit
     - Total potential range for typical projects: $0
   - **D. Implementation/Plan Review/Inspection Costs:**
     - No new requirements or additional inspection burdens are introduced. Eliminating the confusing reference may reduce unnecessary rework or plan review clarification for both code officials and applicants.
   - **E. Life-Cycle Costs:**
     - No impact on operation, maintenance, or replacement costs for building owners or occupants
   - **F. Other Costs:**
     - There are no new compliance reporting, fines, or training requirements. Code officials may benefit from minor clarification during their routine professional development, already part of their duties.
3. **Economic Benefit Analysis**
   - **A. Direct Cost Savings:**
     - Prevents inadvertent compliance errors and related rework or delays, which could otherwise occur due to referencing a non-adopted section.
   - **B. Operational Benefits:**
     - Increases code clarity and reduces risk of misapplication in review and inspection, supporting effective enforcement and regulatory efficiency.
   - **C. Other Benefits:**
     - Supports contractors and designers by eliminating ambiguity, thereby improving overall project delivery and stakeholder confidence in regulatory processes.
4. **Small Business Economic Impact**
   - **A. Small Business Categories Affected:**
     - Plumbing and mechanical contractors (NAICS 238220), designers, and construction firms working on projects involving gas and water piping.
   - **B. Compliance Burden Comparison:**

- No added compliance burden for small businesses. The amendment reduces the potential for small firms (who may be less resourced for code research) to fall into noncompliance by mistake, compared to larger firms with dedicated compliance staff.

C. Potential Disproportion/Mitigation:

- The change is neutral-to-positive and eliminates a possible disproportionate impact caused by confusion. No mitigation necessary; no fees or new paperwork.

5. Least Burdensome Alternative

- This amendment is the least burdensome option as it simply removes an inapplicable reference, restores alignment between adopted code language and Washington regulatory practice, and uses clear, enforceable text Suggested Mitigations: None needed; proposal eliminates burden rather than creates it.

6. Conclusion/Recommendation

- Net societal/economic benefit: Yes. The proposal produces regulatory clarification, reduces error and confusion, and benefits enforcement. Small business burden proportionate/fair: Yes. The amendment either neutralizes or reduces risk for small businesses.

Appendix A
Documentation of Determinations Required under RCW 34.05.328

Describe the general goals and specific objectives of the statute that this rule implements. RCW 34.05.328(1)(a)

The Washington State Building Code Act (Chapter 19.27 RCW) establishes the following general goals and specific objectives:

- **Public Health and Safety** : Protect building occupants and the general public from hazards related to plumbing systems, cross-connections, contamination, structural failure, and water quality issues.
- **Uniform Statewide Standards** : Provide consistent, predictable building code requirements across all jurisdictions in Washington State to ensure fairness and reduce regulatory confusion.
- **Environmental Stewardship** : Promote water conservation, proper wastewater management, and protection of groundwater and surface water resources consistent with Washington's environmental protection goals.
- **Economic Efficiency** : Minimize unnecessary regulatory burden on businesses, contractors, property owners, and enforcement agencies while maintaining essential safety and performance standards.

Explain why this rulemaking is needed to achieve the goals and objectives of the statute. RCW 34.05.328(1)(b)

- **Code Clarity and Consistency** : Eliminate conflicting or ambiguous language between Washington State amendments and model plumbing code provisions, backflow prevention standards (WAC 246-290), and related building codes (ASME A17.1).

- **Technical Accuracy** : Align plumbing code requirements with Washington-specific conditions (rainfall rates, seismic standards), current industry practice, equipment availability, and nationally recognized safety standards.
- **Public Health Protection** : Strengthen cross-connection control, prevent septic system failures, manage Legionella risks in healthcare facilities, and ensure potable water quality protection.
- **Regulatory Coordination** : Harmonize UPC requirements with Washington State Department of Health regulations (WAC 246-290), Labor & Industries enforcement authority (RCW 18.106.440), and energy code provisions.
- **Small Business Support**: Reduce administrative burden, eliminate unnecessary code alternate requests, provide clear compliance pathways, and reduce liability exposure for small plumbing contractors.

Describe alternatives to rulemaking and the consequences of not adopting this rule.

RCW 34.05.328(1)(b)

1. No Rulemaking (Status Quo)

Consequence: Continued use of 2021 UPC with Washington amendments containing the following deficiencies:

- Rainfall conversion factors based on 4 inches/hour (national average) rather than Washington's 1 inch/hour rate, requiring contractors to perform secondary calculations
- Lack of clarity on heat pump water heater condensate discharge to septic systems, risking septic failures costing homeowners $2,000–$8,000
- Ambiguous backflow prevention device requirements creating confusion between testable assemblies and non-testable devices
- Economic Incomplete coordination with WAC 246-290 Department of Health backflow standards

Potential Impact on Small Business: Small plumbing contractors would continue facing:

- Increased design time for conversion calculations ($7.50–$45 per storm drainage design)
- Callback liability for septic system damage from heat pump water heater installations
- Code interpretation disputes requiring costly variance requests
- Inconsistent enforcement across Washington's 39 counties and 281 municipalities

2. Voluntary Guidelines or Bulletins

- **Consequence:** Non-binding guidance would create inconsistent enforcement across jurisdictions, undermining the statute's goal of statewide uniformity.
- **Impact on Small Business:** Contractors working across multiple jurisdictions would face variable interpretation, unpredictable compliance costs, and inability to standardize installation practices.

3. Delayed Adoption (Wait for 2027 UPC)

- **Consequence:** Washington would remain 3–6 years behind current industry standards and Department of Health regulations, creating continued confusion over backflow prevention requirements and missing opportunities to prevent septic system failures and public health risks.

- **Impact on Small Business:** Continued economic disadvantage for Washington-based plumbing contractors; inability to resolve known code conflicts affecting daily operations.

A preliminary cost-benefit analysis was made available. RCW 34.05.328(1)(c)

Yes. The comprehensive cost-benefit analysis (Sections 1-6 of this document) demonstrates substantial net benefits.

Do the probable benefits of this rulemaking outweigh the probable costs, considering both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented? RCW 34.05.328(1)(d)

See sections 2-6

Is this rule the least burdensome alternative for those required to comply? RCW

34.05.328 (1)(e)

Yes. Each individual proposal analysis (see section 6) includes a "Least Burdensome Alternative" determination. Rulemaking as a whole represents the least burdensome approach for the following reasons:

The proposed rulemaking is the least burdensome alternative that achieves the statutory goals of safety, uniformity, energy efficiency, and economic efficiency.

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

Yes ☐ **No** ☒

Explain how that determination was made. RCW 34.05.328(1)(f)

No. This rulemaking does not conflict with or violate any federal or state law. On the contrary, it harmonizes Washington State Plumbing code requirements with multiple federal and state legal frameworks.

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 provide a citation. Explain.**

No. The 2024 IMC amendments apply uniformly to all construction projects in Washington State, regardless of ownership. Public entities (state agencies, counties, municipalities, school districts, public utilities) and private entities (businesses, developers, homeowners) are subject to identical mechanical code requirements.

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

☐ **Yes. List below.**

☒ **No**

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

Yes ☐ **No** ☒

If yes, check all that apply. The difference is justified because:

☐ **A state statute explicitly allows Ecology to differ from federal standards. (If checked, provide the citation.)**

☐ **There is substantial evidence that the difference is necessary to achieve the general goals and objectives of the statute that this rule implements. (If checked, explain.)**

RCW 34.05.328 (1)(h)

Explain how SBCC ensures that the rule is coordinated with other federal, state, and local agencies, laws, and rules. RCW 34.05.328 (1)(i)

Federal, state, and local agencies that are permit holders are directly notified by SBCC of any proposed changes to the permit fee rule.