



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

May 2018
Log No. _____

1. State Building Code to be Amended:

- | | |
|---|---|
| <input type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code | <input type="checkbox"/> International Fuel Gas Code |
| <input type="checkbox"/> International Existing Building Code | <input type="checkbox"/> NFPA 54 National Fuel Gas Code |
| <input type="checkbox"/> International Residential Code | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input checked="" type="checkbox"/> International Fire Code | <input type="checkbox"/> Wildland Urban Interface Code |
| <input type="checkbox"/> Uniform Plumbing Code | |

For the Washington State Energy Code, please see specialized [energy code forms](#)

Section(s):

1103.5.7 (New)

Title:

Bulk Storage of Tires

2. Proponent Name (Specific local government, organization or individual):

Proponent: Dave Kokot, P.E./Justin Cravalho, Spokane Fire Department

Title: Fire Protection Engineer/EIT

Date: 8/13/2024

3. Designated Contact Person:

Name: Dave Kokot

Title: Fire Protection Engineer

Address: 44 W. Riverside Ave., Spokane, WA 99201

Office Phone: (509) 625-7056

Cell: (509) 435-7056

E-Mail address: dkokot@spokanefire.org

4. Proposed Code Amendment. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

Code(s) _____ IFC _____ Section(s) _____ 1103.5.7 _____

Enforceable code language must be used.

Amend section to read as follows:

Add the following section:

1103.5.7 Bulk Storage of Tires

Buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 m3) shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed. Specifically note any impacts or benefits to business, and specify construction types, industries and services that would be affected. Finally, please note any potential impact on enforcement such as special reporting requirements or additional inspections required.

The hazard for tire fires is not lower for existing buildings and can be considered higher as storage for tires in existing buildings has usually been accomplished without any additional code review once the building was constructed. As the model code identifies tire storage as a specific hazard requiring fire sprinklers for new construction, it should also be required for existing buildings. Tire fires are well known to the fire service and are documented to be hazardous not only with the toxic smoke it generates, they can burn for extended periods of time if they are not caught early and not allowed to spread. These fires can demand a significant amount of Fire Department resources and water supplies. The fire sprinklers will also reduce the amount of contaminants release to the air and into the ground.

6. Specify what criteria this proposal meets. You may select more than one.

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

7. Is there an economic impact: Yes No

If no, state reason:

If yes, provide economic impact, costs and benefits as noted below in items a – f.

- a. **Life Cycle Cost.** Use the OFM Life Cycle Cost [Analysis tool](#) to estimate the life cycle cost of the proposal using one or more typical examples. Reference these [Instructions](#); use these [Inputs](#). Webinars on the tool can be found [Here](#) and [Here](#)). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.

A separate life cycle cost analysis has been submitted. This analysis has been copied from an LCCA analysis used by the Washington State Department of Transportation for comparison of asphalt types. The modified version was submitted to the SBCC and accepted as an alternative to the OFM LCC Analysis Tool.

The LCCA provided includes a general cost of \$2.50/sf and \$2.50/sf for the fire service line for a 5,000 sf building.

- b. **Construction Cost.** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

[Click here to enter text.](#)/square foot (See below)

(For residential projects, also provide [Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

Construction costs for fire sprinklers vary depending upon the location, complexity of the system and the ease of installation in existing buildings. In addition, the extra demand for fire flow may require a new service or an upsize to an existing water service to supply the fire sprinklers.

Construction costs for sprinklers range from \$2.16-\$2.93 per square foot for existing commercial buildings (based on the website ProMatcher for several Washington State Cities). The costs for upgrading the water line will depend on the location of the connection and the size. An estimated cost for water main replacement is \$75-\$225 per foot (per Forbes.com). The actual costs would be project specific and vary for each location in the State.

- c. **Code Enforcement.** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

The plan review would be the same as existing plan reviews for fire sprinklers. Some AHJs base their fees on number of sprinklers and others base it on value of the work. The size of the system will determine the amount of hours for a permit application, but would normally be 2-8 hours including processing, plan review and inspections.

- d. **Small Business Impact.** Describe economic impacts to small businesses:

This code change would affect small businesses and require them to either reduce their inventory to avoid fire sprinklers or install fire sprinklers to keep (or increase) their inventory levels. The value of the product stored is much more than the cost of fire sprinklers.

e. **Housing Affordability.** Describe economic impacts on housing affordability:

Not applicable.

f. **Other.** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

- a. The reduction and limitation of tire fires can reduce the negative impact of toxic smoke and liquid rubber to the environment.
- b. Tire fires burn very hot and increase the amount of damage to the building or surrounding area in which the storage occurs.
- c. Fire sprinklers provide a much faster response to a tire fire compared to the time that first responders to get to the scene, access, setup, and then perform extinguishing operations.
- d. Any fire in tire storage areas can be costly due to loss of inventory and/or the structure that the tires are stored in. Fire sprinklers significantly reduce the value of loss for these storage areas.
- e. For a 5,000 sf building, the total number of tires that could be stored in it are approximately 1,500 (based on a nominal tire size, storage height no more than 10 feet and 44" aisles between racking). For tires with a conservative value of \$150 each, that would be an inventory value of over \$225,000.

Please send your completed proposal to: sbcc@des.wa.gov

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.

Costs	Base	Alternate
Construction Cost	\$ 25,000.00	\$ -
Design	\$ -	\$ -
Other Costs	\$ -	\$ -
Total Initial Costs	\$ 25,000.00	\$ -
Operations/Maintenance	\$ 1,250.00	\$ -
Other Annual Costs	\$ -	\$ -
Total Annual Costs	\$ 1,250.00	\$ -
Rehabilitation Cost	\$ -	\$ -
Salvage Value	\$ -	\$ -
Lifespan (Years)	25	10

Area: 5000
 \$/SF: 5

Lifespan Least Common Multiple	25
Base Year	2024
Discount Rate	3.1%

Generate LCCA

Discount Factor	Year	Calendar Year	Base	Alternate
1.0000	0	2024	\$ 25,000.00	\$ -
0.9699	1	2025	\$ 1,212.42	\$ -
0.9408	2	2026	\$ 1,175.96	\$ -
0.9125	3	2027	\$ 1,140.60	\$ -
0.8850	4	2028	\$ 1,106.31	\$ -
0.8584	5	2029	\$ 1,073.04	\$ -
0.8326	6	2030	\$ 1,040.78	\$ -
0.8076	7	2031	\$ 1,009.48	\$ -
0.7833	8	2032	\$ 979.13	\$ -
0.7598	9	2033	\$ 949.69	\$ -
0.7369	10	2034	\$ 921.14	\$ -
0.7148	11	2035	\$ 893.44	\$ -
0.6933	12	2036	\$ 866.57	\$ -
0.6724	13	2037	\$ 840.52	\$ -
0.6522	14	2038	\$ 815.25	\$ -
0.6326	15	2039	\$ 790.73	\$ -
0.6136	16	2040	\$ 766.96	\$ -
0.5951	17	2041	\$ 743.90	\$ -
0.5772	18	2042	\$ 721.53	\$ -
0.5599	19	2043	\$ 699.83	\$ -
0.5430	20	2044	\$ 678.79	\$ -
0.5267	21	2045	\$ 658.38	\$ -
0.5109	22	2046	\$ 638.59	\$ -
0.4955	23	2047	\$ 619.39	\$ -
0.4806	24	2048	\$ 600.76	\$ -
0.4662	25	2049	\$ 582.70	\$ -
0.4521	26	2050	\$ 565.18	\$ -
0.4385	27	2051	\$ 548.18	\$ -
0.4254	28	2052	\$ 531.70	\$ -
0.4126	29	2053	\$ 515.71	\$ -
0.4002	30	2054	\$ 500.21	\$ -
0.3881	31	2055	\$ 485.17	\$ -
0.3765	32	2056	\$ 470.58	\$ -
0.3651	33	2057	\$ 456.43	\$ -
0.3542	34	2058	\$ 442.71	\$ -

0.3435	35	2059	\$	429.39	\$	-
0.3332	36	2060	\$	416.48	\$	-
0.3232	37	2061	\$	403.96	\$	-
0.3135	38	2062	\$	391.81	\$	-
0.3040	39	2063	\$	380.03	\$	-
0.2949	40	2064	\$	368.61	\$	-
0.2860	41	2065	\$	357.52	\$	-
0.2774	42	2066	\$	346.77	\$	-
0.2691	43	2067	\$	336.35	\$	-
0.2610	44	2068	\$	326.23	\$	-
0.2531	45	2069	\$	316.42	\$	-
0.2455	46	2070	\$	306.91	\$	-
0.2381	47	2071	\$	297.68	\$	-
0.2310	48	2072	\$	288.73	\$	-
0.2240	49	2073	\$	280.05	\$	-
0.2173	50	2074	\$	271.63	\$	-
Total			\$	56,560.34	\$	-

Measure	Base		Alternate	
Present Worth	\$	46,560.34	\$	-
Equivalent Uniform Annual Cost	\$	2,703.74	\$	-

Ranking	Alternative	Present Worth
1	Alternate	\$ -
2	Base	\$ 46,560.34

Ranking	Alternative	Equivalent Uniform Annual Cost
1	Alternate	\$ -
2	Base	\$ 2,703.74

Cumulative Life Cycle Cost Comparison



Year	Base	Alternate
2024	\$ 25,000.00	\$ -
2025	\$ 26,212.42	\$ -
2026	\$ 27,388.38	\$ -
2027	\$ 28,528.98	\$ -
2028	\$ 29,635.28	\$ -
2029	\$ 30,708.33	\$ -
2030	\$ 31,749.10	\$ -
2031	\$ 32,758.59	\$ -
2032	\$ 33,737.72	\$ -
2033	\$ 34,687.41	\$ -
2034	\$ 35,608.54	\$ -
2035	\$ 36,501.98	\$ -
2036	\$ 37,368.56	\$ -
2037	\$ 38,209.08	\$ -
2038	\$ 39,024.32	\$ -
2039	\$ 39,815.05	\$ -
2040	\$ 40,582.01	\$ -
2041	\$ 41,325.91	\$ -
2042	\$ 42,047.44	\$ -
2043	\$ 42,747.27	\$ -
2044	\$ 43,426.06	\$ -
2045	\$ 44,084.45	\$ -
2046	\$ 44,723.03	\$ -
2047	\$ 45,342.42	\$ -
2048	\$ 45,943.18	\$ -
2049	\$ 46,525.88	\$ -