

# SEAW Proposal for Special Wind Regions in Washington

JON SIU, PE, SE, ACO

JON SIU CONSULTING, LLC

## Current Code SWRs







## Current Code\* (as adopted, RC II)



\* Per study – not verified

## Current Code\* (as adopted, RC II)



## Recommended SWR Change

SPE	CIAL WIND REGION STUDY   CPP PROJECT 16166
	FINAL REPORT CPP PROJECT 16166 1 AUGUST 2022
CPP	SPECIAL WIND REGION STUDY Washington State and Columbia River PREPARED FOR: Structural Engineers Association of Washington 2150 N 107th S5, Suite 205 Seattle, WA 98133
	Scott Douglas, P.E., S.E. Chair, SEAW Wind Engineering Committee sdouglasscott@gmail.com
	PREPARED BY: Bill Esterday, PE, Principal <u>besterday®cppwind.com</u> Valerie Sifton, PEng, Associate Principal <u>vaifton®cppwind.com</u> David Barks, PEng, PhD, President <u>diavak@eppwind.com</u>
	CPP, Inc. 7365 Greendale Road Windsor, Colorado 80550, USA Tel: +1-970-221-3371 www.cppwind.com
CPP WIND ENGINEERING CONSULTANTS	

#### Based on CPP study

- Funded by SEAW Foundation & other donations
- Included in WABO Fall Meeting packet

## Recommended SWR Change (overview)



# <complex-block><complex-block><complex-block><complex-block><complex-block>

#### New Special Wind Region boundary

#### New, uniform wind speeds within SWR

- RC I = 115 mph
- RC II = 120 mph
- RC III = 130 mph
- RC IV = 135 mph

#### Use ASCE 7 map values everywhere else

- ASCE online map tool: <u>https://asce7hazardtool.online/</u>
  - No cost for anyone to use
  - Can pick location based on clicking on map, entering address, or entering latitude/longitude
  - See tutorial at end

## Recommended SWR vs Current (RC II) – Jefferson, Gray's Harbor, Pacific Counties



## Recommended SWR vs Current (RC II) – Clallam County



## Recommended SWR vs Current (RC II) – Columbia River Gorge



#### **Recommended:**

- Wahkiakum County: 120 mph (*V<sub>asd</sub>* = 93 mph)
  - East boundary at Wahkiakum/Cowlitz boundary, or longitude -123.333° (~6 mi west)
- Everywhere else: per ASCE 7-22 (~96-98 mph)



## Next Steps

SEAW Wind Engineering Committee	<mark>(DRAFT)</mark> WEC WHITE PAPER W3	
ASCE 7 Special Wind Regions in Washington State		Date: October 21, 2022
ABSTRACT: This white paper summarizes <i>Washington State and Colum</i> Inc. dated 1 August 2022. Sp the State of Washington, and recommended wind speed cri (Referenced chapter and secti are specifically for both the A editions. In this White Paper ASCE 7-16/22).	Special Wind Region Study – bia River, a report by CPP, ecial Wind Region history in present and future teria is presented. ion numbers, unless noted, ISCE 7-16 and 7-22 they will be referenced as	Task Group Members: Scott Douglas, P.E., S.E., Chair Don Scott, P.E., S.E. Russell Wilson, P.E Jeff Dragovich P.E., S.E
COMMITTEE MISSION S	TATEMENT:	
<ul> <li>Provide guidelines for win</li> </ul>	nd design and analysis issues in the Star	ndard that are not completely clear.
<ul> <li>Provide guidance for wind Standard.</li> </ul>	l design and analysis for conditions and	d methodology which are not in the
Participate in the ICC/AS	CE 7 code and standard processes to m	nonitor/testify on wind design and

#### White Paper from SEAW Wind Engineering Committee under development

- Anticipate SEAW Board approval before end of 2022
- Includes background, copy of CPP study
- Accept, implement findings of wind study
- Establish eastern Special Wind Region boundary at longitude -123.333°
  - Will divide Wahkiakum County into 120 mph (SWR) and normal ASCE 7-22 regions (96 mph along Columbia River)
  - ~ 6 miles west of border with Cowlitz County
    - Cathlamet is in SWR, regardless of which boundary chosen
    - No other cities affected by moving boundary to/from County line
- To be posted on SEAW, WABO websites when final

## Next Steps



#### SEAW to propose change at SBCC

- Could propose for 2021 codes as emergency rule/midcycle change
  - Unknown whether this is planned
- Include in 2024 codes

### Local jurisdictions could adopt through local amendments

• See especially IRC Table R302.2(1)

## ASCE 7 Hazard Tool Tutorial



#### https://asce7hazardtool.online/

- 1. Select location (choose one method)
  - a. Search for address or building name
  - b. Enter latitude & longitude
  - c. "Find on Map"
    - i. Zoom in/out, click on location on map
- 2. Select ASCE 7 version (year)
- 3. Select Risk Category for building
- 4. If looking for seismic loads, select Site Soil Class
  - a. Can leave on "Default" if unknown, but may result in higher loads
- 5. Select hazards/load types
  - a. Do not use for tsunami loads—see WA DNR maps instead
- 6. Click on "View Results"

## ASCE 7 Hazard Tool Tutorial



#### Wind Summary for Davenport Hotel, Spokane

- ASCE 7-22, RC II
- Design wind speed = 102 mph

#### Notes:

- "Summary" => pop—up window
- "Full Report" => download, including disclaimers



# SEAW Proposal for Special Wind Regions in Washington

JON SIU, PE, SE, ACO

JON SIU CONSULTING, LLC