

## CURRICULUM VITAE

### **Tyler S. Sprague, Ph.D., P.E., LEED® AP**

Associate Professor, Department of Architecture

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## **I. CAREER SUMMARY**

### **I.A. Education**

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|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>April 2013</b> | <b>Ph. D. in the Built Environment</b><br>College of Built Environments<br>University of Washington<br>Dissertation: "Expressive Structure: The Life and Work of Matthew Nowicki" |
| <b>May 2006</b>   | <b>Master of Science (structural)</b><br>Civil and Environmental Engineering<br>University of Washington<br>Thesis: "X-ray tomography for evaluation of damage in concrete bond." |
| <b>May 2003</b>   | <b>Bachelor of Science with Honors</b><br>Civil and Environmental Engineering<br>University of California, Berkeley                                                               |

### **I.B. Professional Licensure and Certification**

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|-------------|----------------------------------------------------------------------|
| <b>2008</b> | <b>Professional Engineer (PE) in California</b><br>License # C 73021 |
| <b>2006</b> | <b>LEED Accredited Professional (USGBC)</b>                          |

## **II. RESEARCH**

### **II.A Publications**

#### **1. Books**

*Sculpture on a Grand Scale: Jack Christiansen's Thin Shell Modernism*, University of Washington Press, Seattle, 2019.

*We Had to be Dreamers: A Century of Engineering Leadership*, with Sybil Hatch, Tyler S. Sprague, Magnusson Klemencic Associates Inc., Prepress Inc., San Francisco, 2016.

#### **2. Book Chapters**

##### **In Progress**

"Una conversación sobre paraboloides hiperbólicos: Jack Christiansen y la influencia de Félix Candela." *La estela de Félix Candela: cascarones de concreto armado en México y el mundo ("The wake of Felix Candela: reinforced concrete shells in Mexico and the world")*, UNAM, Mexico City, 2020

##### **Published**

"The Pre-cast Concrete of the Seattle World's Fair' Pacific Science Center" in *Constructing Building Enclosures: History, Technology & Poetics in the Post War Era*, ed. Fordham, Clifton, Routledge, forthcoming 2020

"'Lighted Fair' and the City: The Lighting of the 1909 Alaska-Yukon-Pacific Exposition and its Seattle Legacy" in *L'Architecture Lumineuse au XXe Siècle (Luminous Architecture in the 20<sup>th</sup> Century)*, ed. Monin, Eric, Simonnot, Nathalie, Uitgeverij Snoeck Publishers, Ghent, 2011.

#### **3. Peer-Reviewed Journal Articles**

"Jack Christiansen's Cylindrical Concrete Shells", *Journal of the International Association for Shell and Spatial Structures* 59, no. 2 (2018) June n.196: 131-140. <https://doi.org/10.20898/j.iass.2018.196.883>

"Products of Place: The Era of Reinforced-Concrete Skyscrapers in Seattle, 1921-1931." *Pacific Northwest Quarterly* 106, no. 3 (2015): 107-19.

Awarded the Charles Gates Literary Award, for best paper of 2016 in *Pacific Northwest Quarterly*, by the Washington State Historical Society, awarded September 23, 2017.

"Beauty, Versatility, Practicality": the rise of Hyperbolic Paraboloids in the post-war America (1950-1962)," *Journal of Construction History, Special Issue: Construction History in the Americas* 28, no. 1 (2013): 165-184.

"Beyond Le Corbusier and the modernist city: reframing Chandigarh's 'World Heritage' legacy," co-author with Manish Chalana, University of Washington, *Planning Perspectives* 28, no. 2 (2013): 199-222.

"Lighted Fair is Magic Landscape: The A-Y-P at Night," *Pacific Northwest Quarterly* 100, no. 2 (2009): 70-78.

#### **4. Peer Reviewed Encyclopedia Entries**

"Yakima Valley SunDome" [Yakima, Washington], SAH Archipedia, eds. Gabrielle Esperdy and Karen Kingsley, Charlottesville: UVaP, 2012—, <http://saharchipedia.org/buildings/WA010770021>. Accessed 20190228.

"Columbia Center" [Seattle, Washington], SAH Archipedia, eds. Gabrielle Esperdy and Karen Kingsley, Charlottesville: UVaP, 2012—, <http://saharchipedia.org/buildings/WA010330065>. Accessed 20190228.

"Norton Building" [Seattle, Washington], SAH Archipedia, eds. Gabrielle Esperdy and Karen Kingsley, Charlottesville: UVaP, 2012—, <http://saharchipedia.org/buildings/WA010330075>. Accessed 20190228.

"St. Demetrios Greek Orthodox Church" [Seattle, Washington], SAH Archipedia, eds. Gabrielle Esperdy and Karen Kingsley, Charlottesville: UVaP, 2012—, <http://saharchipedia.org/buildings/WA010330084>. Accessed 20190228.

#### **5. Invited Memorial Statement in Peer-Reviewed Journals**

"Memorial to John V. 'Jack' Christiansen", in *Journal of the International Association for Shell and Spatial Structures*, 59, no. 1 (2018) March n. 195: 6-7.

#### **6. Invited Book Reviews**

Sprague, Tyler S. "Review: *The Structure of Design: An Engineer's Extraordinary Life in Architecture*, by Leslie Earl Robertson." *Journal of the Society of Architectural Historians* 77, no. 4 (2018): 482-83.

Sprague, Tyler S. "Infrastructure, Two Ways." *Journal of Planning History* (2018), First published May 28, 2018 (online) doi: 10.1177/1538513218775862. Comparative book review of Williams, David B. *Too High and Too Steep: Reshaping Seattle's Topography*. Seattle: University of Washington Press, 2015.

Schwartz, Harvey. *Building the Golden Gate Bridge A Workers' Oral History*. Seattle: University of Washington Press, 2015.

## 7. Invited Reading List Curation

"Architecture and Structural Engineering", Curated Reading List, *Places: The Journal of Public Scholarship on Architecture, Landscape and Urbanism*. <https://placesjournal.org/reading-list/architecture-and-structural-engineering/>. First published 18 January 2019.

## 8. Non-Peer Reviewed Journal Articles

"Eero Saarinen, Eduardo Catalano and the Influence of Matthew Nowicki: A Challenge to Form and Function," *Nexus Network Journal*, Birkhauser Verlag, 12, no. 2 (2010): 249-258.

"The Stability of Interior Corners," *Column 5* (Journal of the University of Washington Department of Architecture) 20 (2006): 34-37.

## 9. Refereed Conference Proceedings

"Parameters of Structural Design: Analyses of Jack Christiansen's Hyperbolic Paraboloid Shells", with Tyler van Iderstein and Richard Weibe, eds. Adriaenssens, Sigrid; Mueller, Caitlin, *Creativity in Structural Design: Proceedings of IASS Annual Symposia, IASS 2018 Boston Symposium: Historical spatial structures*: 1-4.

"Residential Timber Shells: Design and Viability of the Weyerhaeuser Wood Products Research House", with William Nicholson, Adriaenssens, Sigrid; Mueller, Caitlin, *Creativity in Structural Design: Proceedings of IASS Annual Symposia, IASS 2018 Boston Symposium: Historical spatial structures*: 1-8.

"Optimized Material, Expressive Forms: Precast Concrete Architecture in the Pacific Northwest," eds. Doyle, Shelby; Leslie, Thomas; Whitehead, Robert, *Poetics and Pragmatism: Proceedings of Building Technology Educators Society 2017 National Meeting*, Des Moines, IA. 8-10 June 2017: 231-237.

“Explorations in Structural Geometry: Jack Christiansen’s Segmental Hyperbolic Paraboloids,” eds. Kawaguchi, Ken’ichi; Ohsaki, Makoto; Takeuchi, Toru, *Proceedings of IASS Annual Symposia, IASS 2016 Tokyo Symposium: Spatial Structures in the 21st Century – Shell Structures*, 26-30 September 2016, Tokyo, Japan: 1-10.

“HyparActive: A Design Exploration Tool for Multi-segment HyPar Shells,” Davis, Winston, Johnson, Brian R., eds. Kawaguchi, Ken’ichi; Ohsaki, Makoto; Takeuchi, Toru, *Proceedings of IASS Annual Symposia, IASS 2016 Tokyo Symposium: Spatial Structures in the 21st Century – Conceptual Design*, 26-30 September 2016, Tokyo, Japan: 1-10.

“WATCH/ RESPOND/ ACT/ PLAY: A Hybrid Approach for Architectural Structures Education,” eds. Gines, Jacob A.; Carraher, Erin; Galarza, Jose, *Intersections and Adjacencies: Proceedings of the 2015 Building Technology Educators Society Conference*, 24-26 June 2015, Salt Lake City UT: 223-229.

“Sculpture on a Grand Scale: The Structural Geometry of Jack Christiansen’s Thin Shells”, eds. Bowen, Brian; Friedman, Donald; Leslie, Thomas; Ochsendorf, John, *Proceedings of the Fifth International Congress on Construction History (ICCH5)*, 3-5 June 2015, Chicago IL., vol. 3: 379-386.

“The Rise of the Bearing-Wall Skyscraper: A Perspective from Seattle,” eds. Bowen, Brian; Friedman, Donald; Leslie, Thomas; Ochsendorf, John, *Proceedings of the Fifth International Congress on Construction History (ICCH5)*, 3-5 June 2015, Chicago IL., vol. 3: 371-378.

“Structural & Material Evaluation of Thin Shell Concrete (Hyperbolic Paraboloid) Structures in the Pacific Northwest”, eds. Doyle, Kathryn; Ferrell, Andrew; Sanchis III, Frank E.; Striegel, Mary F., *Proceedings of the Mid-Century Modern Structures: Materials and Preservation Symposium, National Center for Preservation Technology and Training*, 13-16 April 2015, St. Louis MO: 215-221.

“The Conservation of Thin-Shell Concrete Structures”, eds. Peña, F.; Chávez, M. *Proceedings of 9th International Conference on Structural Analysis of Historic Constructions*, 14-17 October 2014, Mexico City, Topic 1, Paper 2 (digital publication).

“Floating Roofs”: The Dorton Arena and the Development of the Modern Tension Roof” ed. Cruz, Paulo J.S., *Structures and Architecture: Concepts, Applications and Challenges, Proceedings of the Second International Conference of Structures and Architecture*, Guimaraes, Portugal, 23-26 July 2013. Taylor & Francis Group, London: 331-332.

“The Deliberate Designer: Integrating Research and Design into an Interdisciplinary Design Studio,” with Ken Yocom & Manish Chalana, eds De Vos, Els; De Walshe, Johan; Michels, Marjan; Verbruggen, Sven, *Proceedings of the Conference Theory by Design at Artesis University College Antwerp*, 29-31 October 2012, University Press Antwerp, Belgium: 411-416.

## 10. Academic Studio Books

Editor and Contributor, *CASTING Studio: PCI Foundation Studio*, with Jim Nicholls, (University of Washington, Tectonic Studio, Winter 2018).

Editor and Contributor, *Timber Shell Studio* with John Ochsendorf (University of Washington, Onouye Studio, Spring 2018).

Editor and Contributor, *CASTING Studio: PCI Foundation Studio*, with Jim Nicholls, (University of Washington, Tectonic Studio, Winter 2017).

Editor and Contributor, *CASTING Studio: PCI Foundation Studio*, with Jim Nicholls, (University of Washington, Tectonic Studio, Winter 2016).

Editor and Contributor, “Building Chandigarh... Brick by Brick” *Globalization and the Modernist City: The Chandigarh Experience*, Vikramaditya Prakash, ed., (University of Washington India Program, March 2011), 264-265.

## 11. Blog Contributions

“Shared Structure: A Bench & Interactive Canopy”, posted to Department of Architecture blog, <http://arch.be.washington.edu/shared-structure-a-bench-interactive-canopy/>, 25 October 2018.

“Sculpture on a Grand Scale”, posted to University of Washington, Department of Architecture blog, <http://arch.be.washington.edu/sculpture-on-a-grand-scale/>, 19 July 2018.

“Timber Shell Studio”, posted to University of Washington, Department of Architecture blog, <http://arch.be.washington.edu/timber-shell-studio/>, 30 January 2018.

“CHSA Conference” posted to University of Washington, Department of Architecture blog, <http://arch.be.washington.edu/chsa-conference/>, 15 June 2017.

“Casting Studio” posted to University of Washington, Department of Architecture blog,, <http://arch.be.washington.edu/casting-studio/>, 26 July 2016.

“Abu Dhabi Summer” posted to University of Washington, Department of Architecture blog, <http://arch.be.washington.edu/with-summer-rapidly-approaching-assistant-professor-tyler-sprague-recalls-last-summers-whirlwind-trip-to-abu-dhabi/>, 28 May 2015.

“Spaghetti and String” posted to University of Washington, Department of Architecture blog, <http://arch.be.washington.edu/spaghetti-and-string/>, 23 May 2014.

## 12. References, citations and edits

Provided research assistance for publication of Prakash, Vikram “Chapter 11 – Epilogue: Third World Modernism or Just Modernism? Towards a Cosmopolitan Reading of Modernism” in Lu, Duanfang. *Third World Modernism: Architecture, Development and Identity* (New York, NY: Routledge, 2010): 267.

### II.B Grants

“Sculpture on a Grand Scale: Celebrating the Legacy of Jack Christiansen’s Thin Shell Concrete Structures”, 4Culture Heritage Project Grant to produce exhibit and archive, \$4700, May 2019.

“Etruscan Architecture: Life, Death and Transition,” proposal to Global Architectural History Teaching Collaborative, to produce academic lectures, \$9900, February 2019.

“UW Casting Studio: Studio + Research”, PCI (Precast/Prestressed Concrete Institute) Foundation Grant, 3-year grant support to offer precast concrete studio and support summer research activities, \$25,000 / year. 2016-2018.

“Global History of Rock-cut or ‘Chthonic Architecture’,” proposal with Vikramaditya Prakash to Global Architectural History Teaching Collaborative, produce academic lectures, \$8000, April 2015.

Elisabeth Walton Potter Research Award, SAH Marion Dean Ross Chapter, “A Preservation Survey of Hyperbolic Paraboloids in the Pacific Northwest” awarded \$500, March 2012.

Center for the Study of the Pacific Northwest, Travel & Research Grant, “A

Preservation Survey of Hyperbolic Paraboloids in the Pacific Northwest,” awarded \$750, January 2012.

Society of Architectural History, Marion Dean Ross (Pacific Northwest Chapter), Award: Wendell Lovett Travel Award to present at regional SAH conference, awarded \$500, October 2011.

## **II. C      Presentations**

### **1. Refereed Presentations**

“Parameters of Structural Design: Analyses of Jack Christiansen’s Hyperbolic Paraboloid Shells”, Creativity in Structural Design: International Association of Shell and Spatial Structures Symposium 2018, MIT, Boston, MA. 18 July 2018.

“Residential Timber Shells: Design and Viability of the Weyerhaeuser Wood Products Research House”, Creativity in Structural Design: International Association of Shell and Spatial Structures Symposium 2018, MIT, Boston, MA, 18 July 2018.

“Architectural Design Meets Structural Analysis: Timber Shell Studio at the University of Washington”, Structures Congress (Structural Engineers Institute, ASCE), Fort Worth, TX. 19 April 2018.

“UW Casting Studio”, Precast Concrete Institute – National Convention, Denver, CO. 23 February, 2018.

“Optimized Material, Expressive Forms: Precast Concrete Architecture in the Pacific Northwest,” Building Technology Educators Society 2017 National Meeting, Des Moines, 6 June 2017.

“Material Efficiency through Structural Form: The History and Future of Thin Shell Construction,” American Society of Civil Engineers, Structural Engineering Institute, Denver, CO. 7 April 2017.

“UW Casting Studio”, Precast Concrete Institute – National Convention, Cleveland, OH. 3 March, 2017.

“Chthonic Architecture”, Global Architectural History Teaching Collaborative Annual Meeting, Seattle, WA. 8 October 2016.

“Explorations in Structural Geometry: Jack Christiansen’s Segmental Hyperbolic Paraboloids,” Spatial Structures in the 21<sup>st</sup> Century: International



Association for Shell and Spatial Structures (IASS) Symposium 2016, Tokyo, Japan, 27 September 2016.

“Restricted Creativity: Jack Christiansen’s Cylindrical Shells”, 5th Biennial Meeting, Construction History Society of America, Austin TX, 29 May 2016.

“A Lost/Found Future of Modern Architecture: The Reputation of Matthew Nowicki,” Society of Architectural Historians, Annual Meeting, Pasadena CA, 8 April 2016.

“WATCH/ RESPOND/ ACT/ PLAY: A Hybrid Approach for Architectural Structures Education,” Building Technology Educators Society Bi-Annual Conference, Salt Lake City UT, 25 June 2015.

“Sculpture on a Grand Scale: The Structural Geometry of Jack Christiansen’s Thin Shells,” International Conference of Construction History (ICCH5), Chicago IL, 6 June 2015.

“The Rise of the Bearing-Wall Skyscraper: A Perspective from Seattle”, International Conference of Construction History (ICCH5), Chicago IL, 3 June 2015.

“Structural & Material Evaluation of Thin Shell Concrete (Hyperbolic Paraboloid) Structures in the Pacific Northwest”, Mid-Century Modern Structures: Materials and Preservation Symposium, National Center for Preservation Technology and Training, St. Louis MO, 16 April 2015.

“Sculpture on a Grand Scale: The Structural Geometry of Jack Christiansen’s Thin Shells”, Construction History Society of America + AIA Minnesota Annual Conference, Minneapolis MN, 14 November 2014.

“The Rise of the Bearing-Wall Skyscraper: A Perspective from Seattle,” Construction History Society of America + AIA Minnesota Annual Conference, Minneapolis MN, 12 November 2014.

“The Seattle City Light Tower & The Rise of Concrete Skyscrapers in the Pacific Northwest,” Society of Architectural Historians, Pacific Northwest Chapter, Seattle WA, 3 October 2014.

“Floating Roofs: The Dorton Arena and the Development of the Modern Tension Roof,” International Conference of Structures and Architecture, Guimaraes, Portugal, 24 July 2013.

“Beauty, Versatility, Practicality: The Innovative Construction of Hyperbolic

Paraboloids in Post-war America," 3<sup>rd</sup> Biennial Meeting, Construction History Society of America, MIT, Cambridge MA, 2 November 2012.

"A Module of Northwest Modernism: Hyperbolic Paraboloids in the Pacific Northwest," Marion Dean Ross, Northwest Chapter of the Society of Architectural Historians, Boise ID, 8 October 2011.

"Ephemera and Permanence: The Legacy of Lighting the A-Y-P Lighting," Luminous Architecture in the 20th Century (1907-1977), Nantes, France, 10 December 2009.

## **2. Non - Referred Presentations**

"Matthew Nowicki's Transnational Chandigarh: Influence and Legacy", Long Table Discussion @ UW Architecture, Pacific Standard Time @Seattle, Seattle, WA, 10 May 2018.

"Historical Development of the Bearing Wall Skyscraper: The Pacific Northwest's Role," Structural Engineers Association of Washington, Northwest Chapter, Seattle WA, 18 September 2014.

"Lighted Fair is Magic Landscape: The A-Y-P at Night," Pacific Northwest Historians Guild Annual Meeting, Seattle WA, 7 March 2009.

"A Digital Investigation of Concrete Fracture: Extracting Spatial Information from Images," MS in Structural Engineering presented to UW Built Environment Colloquium, Seattle WA, 22 January 2009.

"Analysis: Are we teaching the wrong stuff?" Panel member at ASCE Structures Congress, 18th Analysis and Computation Conference, Vancouver BC, 24 April 2008.

## **3. Invited Lectures**

"Sculpture on a Grand Scale", lecture to Structural Engineers Association of Washington. Seattle, WA. October 22, 2019.

"Sculpture on a Grand Scale", lecture to Magnusson Klemencic Associates. Seattle, WA. October 16, 2019.

"Thin Shells of Jack Christiansen in the Pacific Northwest, USA", La Estela de Félix Candela a 20 años de su muerte: Cascarones de concreto armado en

México y el Mundo, UNAM, Mexico City, 8 December 2017.

“Challenges to Structure and Form: Eduardo Catalano’s Place in Post-war Modern Architecture”, Symposium on Eduardo Catalano, North Carolina State University, Raleigh, N.C., 2 November 2017.

“Engineers, Architects, Builders: A Legacy of Innovation in the Pacific Northwest”, Structural Engineers Foundation of Washington, 2016 Fall Forum, Seattle, WA, 10 November 2016.

“The Bearing-Wall Skyscraper: The Pacific Northwest’s Role”, Bi-Annual Conference of the Structural Engineers Association of the Northwest, Seattle WA, 18 September 2014.

## **II. D Panel Moderation, Poster Sessions and Exhibit Creation**

### **1. Refereed Conference Session Organization**

Originator and organizer, with Marci Ulien (University of Illinois) and Robert Dermody (Roger Williams University), “Structure as Design Knowledge,” 2016 ACSA Conference, Seattle WA, 18 March 2016.

### **2. Panel Moderator**

"Structural Engineers of the Seattle World’s Fair," for the Structural Engineer’s Association of Washington, monthly meeting moderated panel of engineers who worked directly on fair buildings, 27 November 2012.

### **3. Convention Poster Sessions**

“Fabric Formed Concrete + DUO Formwork”, Poster prepared for the 2018, UW Undergraduate Research Symposium, with students Morocco Branting and Sean Yang, Seattle, WA, 18 May, 2018

*“COMPLEX CURVATURE FOR CONCRETE SURFACES: Programmable Formwork for Precast Thin-Shell Structures,” Poster prepared for the Precast/Prestressed Concrete Institute Annual Convention, with student William C. Nicholson, Denver, CO, 23 Feb. 2018.*

*“Hyperbolic Paraboloids: Viability within Precast Concrete,” Poster prepared for the Precast/Prestressed Concrete Institute Annual Convention, with student Chris Hall, Cleveland, OH, 4 March 2017.*

#### 4. Exhibit Creation

Exhibition of work by Jack Christiansen at UW Gould Hall Gallery, “Sculpture on a Grand Scale: The Life and Work of Jack Christiansen.” Included both 3D printed models and photo + drawing exhibit panels of historical projects, historical artifacts, memorabilia, and a scale Kingdome model. September 25<sup>th</sup> - December 6<sup>th</sup>, 2019. Funded by 4Culture (\$4700).

Exhibition of work by Jack Christiansen at the IASS Conference (*Creativity in Structural Engineering*) at MIT, Boston, MA, 16-20 July 2018. Included both 3D printed models and photo + drawing exhibit panels of historical projects. Funded by external donors – Magnusson Klemencic Associates, SEAW (~\$7500).

Exhibition of 2017 Onouye Studio work at Department of Architecture, 208 Gould Hall, University of Washington. Six large format boards. Fall 2017 to Winter 2018.

Creation of exhibition panels on the construction of Chandigarh, for “Chandigarh to NanoCity: Past and Future of Urban Planning in India”: A Panel Discussion on Chandigarh and NanoCity, held at Swissnex San Francisco,  
[http://fora.tv/2010/07/08/Planning\\_India\\_From\\_Chandigarh\\_to\\_NanoCity#fullprogram](http://fora.tv/2010/07/08/Planning_India_From_Chandigarh_to_NanoCity#fullprogram), 8 June 2010.

#### II. E Documentary Film Production

Organizing member of “Structural Engineers of the Seattle World’s Fair” interview project, with the Structural Engineers Foundation (SEF), a part of Structural Engineers Association of Washington (SEAW), Oral History Interviews - 30 May 2012 . <https://vimeo.com/69351058>  
Script writing and technical advisor for documentary, Spring 2013.