

FRANCESCA RENOARD, PE/SE
DATE OF BIRTH OCTOBER 28, 1990 - AGE 32
ASSOCIATE PRINCIPAL, SWENSON SAY FAGÉT



BUILDING DESIGN & CONSTRUCTION - 40 UNDER 40 SUBMISSION





Swenson Say Fagét
STRUCTURAL ENGINEERING

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May 19, 2023

Building Design & Construction
40 Under 40 Selection Panel
qpurcell@sgcmail.com, dbarista@sgcmail.com.

Subject: Personal Statement for Francesca Renouard, PE/SE
Associate Principal/Shareholder, Swenson Say Fagét structural engineers
Date of birth: October 28, 1990 - Age 32

Dear Selection Panel,

Francesca Renouard, PE/SE, is a phenomenal structural engineer with a lifelong passion for existing buildings and historic preservation. She has the academic training, technical skills, dedication, and inventiveness required to excel in her field. Her interpersonal skills and integrity allow her to build fluid client relationships and take on both internal and external leadership roles with ease. **As I will demonstrate below, she possesses all the essential qualities integral to becoming a 2023 Building Design & Construction 40 Under 40 winner.** I enthusiastically submit Francesca for consideration!

When Francesca was 17, she contacted me to **shadow** a structural engineer in my office as part of a high school career day activity. Even at that young age, she was focused on becoming a structural engineer. Little did I know that this young woman would become such **an essential player in the building design and construction industry and in my firm.**

While she was attending the University of Washington, we connected again, and she joined us as an **intern** for a year and a half. She then left for **graduate school** at the University of California/Berkeley. After completing her master's degree, **Francesca rejoined SSF, where she quickly rose in the ranks of our organization because of her hard work, self-study, curiosity, willingness to learn from experienced colleagues, and ability to build business relationships.** She has pushed through the barriers of a male-dominated field and is frequently the most intelligent person in the room. I was fortunate to help steer her career as a mentor, and now I'm proud to claim her as a peer.

Francesca's parents met in the historic town of Civita di Bagnoregio in Lazio, Italy when they were young architects specializing in preservation. Her family vacations centered around existing buildings. Not many children spent their summers rehabilitating a 1914 historic hotel in Butte, Montana, or renovating an abandoned sixteenth-century villa

built around an ancient Roman aqueduct in Orte, Italy. It is perhaps of little surprise that Francesca pursued a career in historic preservation - it's in her DNA.

Francesca **seizes every opportunity** presented to her and often **creates opportunities** on her own. She is a **voice** and **role model** for women in our office and an authority in the repair and seismic retrofit of existing buildings. Her **contributions** inside and outside the office **are unparalleled. She continuously raises her hand to learn more, teach others, and share her expertise with anyone who is interested.**

She is **engaging, magnetic, approachable**, and exhibits qualities far different than a typical engineer. Communicating complex technical topics in an easy-to-understand way is an important skill when communicating with the public. **People quickly build trust with her because she genuinely listens to them and communicates her own thoughts with empathy and compassion.**

Francesca's **influence extends beyond our organization**. She selflessly volunteers her time to community organizations or non-profits that focus on existing buildings. These include Historic Seattle, The Washington Trust for Historic Preservation, The King County Landmarks Commission, The City of Seattle Unreinforced Masonry (URM) Task Force, and the Friends of Ravenna-Cowen National Historic District.

Without a doubt, Francesca is the future face of SSF's historic preservation, building renovation, and existing building adaptive reuse services. **Her strong work ethic, dedication to her career and staff, and personal integrity have propelled her to great heights at the early age of 32. She recently became an owner of our company, and I know her influence and growth will not stop there.**

I strongly endorse Francesca Renouard as a valuable addition to the Building Design & Construction's 40 Under 40 list. I would love to discuss her qualifications for this award in further detail.

Sincerely,



Dan J. Say, PE/SE
President / Managing Principal
dsay@ssfengineers.com

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RELEVANT 40 UNDER 40 SKILLS AND QUALIFICATIONS MAY BE FOUND HERE

<input checked="" type="checkbox"/> Leadership skills	8, 9, 10, 11, 12, 14, 16, 18, 19, 20
<input checked="" type="checkbox"/> Inventiveness	11, 12, 18
<input checked="" type="checkbox"/> Sustained career progress	8, 9, 10, 11, 12, 16, 17, 19, 20
<input checked="" type="checkbox"/> People skills	8, 9, 10, 13, 14, 15, 18
<input checked="" type="checkbox"/> Client relations	5, 6, 7, 10, 15, 18
<input checked="" type="checkbox"/> Academic training	8, 9, 11, 12, 17, 18
<input checked="" type="checkbox"/> Dedication	8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20
<input checked="" type="checkbox"/> Personal integrity	10, 14, 15, 16, 19, 20, 21
<input checked="" type="checkbox"/> Technical skills	8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
<input checked="" type="checkbox"/> Community outreach/volunteer work	13, 14, 15, 16

April 12, 2023

Building Design and Construction
40 Under 40 Selection Panel

To the Selection Panel,

Francesca Renouard's creativity and insight on the structural implications of historic building rehabilitation have been central to retaining embodied energy, improving life-safety, and sustaining important buildings. We have depended on Francesca's abilities to work as an integral member of creative design teams and advise on the implications of multiple strategies for building rehabilitation. Her technical and intellectual agility support her communication skills: she is both an intent listener and a confident communicator of structural concepts in various settings.

We have been working with Francesca on a number of important historic buildings – from some of Seattle's Carnegie libraries to the Washington State Legislative building. Currently, we are collaborating on the rehabilitation of the University Branch Library in Seattle, a city landmark listed on the National Register of Historic Places. She has consistently demonstrated an intimate knowledge of the building and a deft understanding of architectural intent. As a consequence, her collaboration has been fundamental to the design from pre-design through design documentation. The project incorporates several seismic strategies including concealing a stout moment frame within the thickness of the existing masonry wall. Francesca has demonstrated a deep understanding of the historic character of both the building interior and exterior while maintaining a focus on seismic performance.

We have come to know Francesca both in the course of our work and in the community at large especially among organizations committed to protecting historic buildings and sites. Historic Seattle, in particular, benefits from Francesca's structural expertise as well as her knowledge of real estate development in general.

On the basis of her inventiveness, collaborative character, and insight, we offer our strongest support for Francesca Renouard to be listed as one of Building Design and Construction's 40 Under 40. Please let us know if you have any questions at all.

Sincerely,



Matt Inpanbutr, AIA
Principal



David Strauss, AIA
Principal

17 April 2023

Building Design and Construction
40 Under 40 Selection Panel

RE: Letter of Recommendation for Francesca Renouard

To whom it may concern,

We at Graham Baba Architects proudly and wholeheartedly endorse Francesca Renouard for this recognition. We have enjoyed collaborating with her on several simultaneous projects over the past three years.

She comes up with creative structural solutions to design problems, particularly when unexpected conditions arise during the design and construction of existing buildings. She is responsive and communicates well with us as Architects. She is willing to iterate with us and discuss several design ideas instead of just defaulting to the easiest or quickest solution.

Francesca always goes beyond just engineering. She is an active team player interested in the overall design concept for the architecture and thinks of creative and innovative solutions to forward the design concept. In the penthouse addition to a 1920's three story warehouse conversion, we were limited by the existing roof structure and our desire to run mechanical and structure in limited space. Francesca was actively involved in brainstorming and looking at multiple solutions and iterations until we found the right structural solution that also served the bigger idea for the building. She is always available to jump on a call with us and the contractor to troubleshoot issues that come up during construction. When in a tight spot where solutions may seem limited, she finds an elegant approach to address a structural need.

We recently worked on another challenging adaptive reuse project with Francesca where the purchase and sale agreement did not allow the client to investigate the condition of the two existing conjoined structures, one a CMU structure, the other a two-story butler building. Once the team had access to the structures, it was clear they needed significant upgrading to meet the requirements of a substantial alternation. Francesca was nimble and thoughtful with her design, adding two concrete shear walls, among other devices, to strengthen the structures. Her smile and positive attitude helped the team get through a challenging project, and her professionalism overcame a few moments when her details and strategies were questioned by steel and concrete subcontractors. Even with a tight budget, Francesca was always available for quick but thorough solutions to problems as they arose, keeping the construction of the project moving despite a multitude of challenges.

We all see a very bright future for Francesca and her professional career. We look forward to our next complex and rewarding project with her.

Sincerely,

A handwritten signature in black ink, appearing to read 'James E. Graham', with a stylized flourish at the end.

James E. Graham, AIA
founding partner



BUILDINGWORK

architecture design preservation

April 16, 2023

Heidi Maki
Associate Principal
Swenson Say Faget
2124 Third Avenue, Suite 100
Seattle, WA 98121

Dear Heidi

I am pleased to provide this letter of endorsement for Francesca Renouard, P.E., as an outstanding candidate for the *Building Design + Construction 2023 40 Under 40* competition.

As the founder and owner of a Seattle architecture firm that designs complex and highly demanding projects, I can say that there is no design team member who is more critical to the success of our projects than our structural engineer. We are often seeking innovative structural solutions for our projects, where the structural system is exposed and highlighted as a key architectural feature of the building. This means that we need to collaborate intensively with our structural engineers, and that our design and documentation requires a high level of coordination and resolution at the detail level.

My team and I have been very fortunate to have worked with Francesca Renouard for the past seven years on the design of numerous adaptive reuse and historic building renovation projects, and we have come to rely on her expertise, responsiveness, and creative problem-solving.

During the design and documentation phases Francesca brings innovative engineering ideas to the table. For example, Francesca proposed and developed an unusual hybrid seismic retrofit design for the Metropole project, which utilizes an inventive combination of steel moment frames, concrete shear walls, and existing masonry walls to create a new lateral stability system for the 130-year-old building.

During construction administration, my team has been consistently impressed by how Francesca stays on top of the fast-moving process of construction. Recently, during a site walk for one of our historic building renovation projects, Francesca identified an unforeseen of structural instability in the building – she notified the contractor to stop work in the area, and then quickly developed a structural design solution repair the problem so that construction could proceed safely.

These are just two examples of Francesca's leadership and dedication. I look forward to her continued advancement in her profession, and I wholeheartedly endorse Francesca as a candidate for the *BD+C 40 2023 Under 40*.

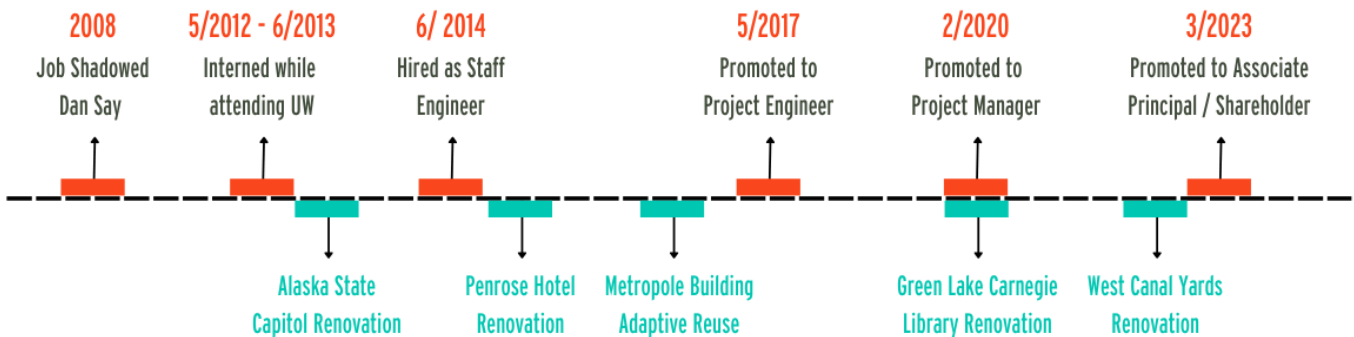
Sincerely,

Matt Aalfs, AIA
Partner, BuildingWork

CAREER DEVELOPMENT - SWENSON SAY FAGÉT

Francesca Renouard, PE/SE

- ✓ Leadership skills
- ✓ Sustained career progress
- ✓ People skills
- ✓ Academic training
- ✓ Dedication
- ✓ Technical skills



“Francesca is passionate about the craft of engineering and mentorship. She took the initiative to create an annual goal setting process within her team to help less experienced engineers with their technical and career development. Other team leaders have recognized its results and have started to incorporate it into their team development.”
 Chardie Byrne
 Managing Principal, SSF

Swenson Say Fagét

Though some might attribute the beginning of her career journey to when she visited the Swenson Say Fagét (SSF) office to job shadow while still in high school, Francesca’s structural engineering career officially began in 2012 when she took an internship with SSF while completing her undergraduate studies at the University of Washington. After a yearlong stint in California earning her master’s degree, she returned to Seattle and SSF as a full-time engineer.

As a young project engineer, Francesca enthusiastically took on the challenge of learning from her engineering supervisors and peers and further developing internal procedures. She rapidly excelled in using performance-based principles to evaluate and retrofit existing buildings following the complicated methods of the structural engineers’ reference manual for seismic resilience of existing buildings, ASCE-41. Her ability to produce simple, elegant solutions to complex retrofit problems quickly earned her recognition among colleagues and clients.

Within six years after joining SSF, she led project teams as a Project Manager. Many of the most complicated projects found their way to her desk. She has provided structural studies and retrofit designs for dozens of historic buildings, including state capitol buildings in Washington and Alaska, six Carnegie libraries in Seattle, and many more structures in Seattle’s historic Pioneer Square and International District. Francesca recently became a shareholder and Associate Principal at the firm in recognition of her valuable contributions. Francesca’s passion for historic preservation and strong work ethic helped her soar from job shadowing to shareholder and Retrofit Team Associate Principal in just ten years.

Retrofit Team Leadership

Francesca plays an essential role at SSF as a leader and go-to person for everything retrofit related. She is regarded as the go-to knowledge source for existing buildings and frequently fields questions from engineers firm-wide. Francesca facilitates continued learning throughout the office by leading seminars on code changes and the adaptive reuse of existing buildings.



Francesca giving direction on the job site

✔ Leadership skills ✔ Sustained career progress ✔ People skills ✔ Client relations ✔ Dedication ✔ Technical skills

“Francesca has a rare combination of ability and ambition. SSF’s work to preserve, reuse, and improve existing structures has been a cornerstone of our business for past 3 decades. With Francesca’s talent, passion for existing buildings, and expanding leadership role, we will continue to be industry leaders in this field.”

Brian Rittereiser, PE/SE
SSF Principal

Lan Nguyen boasts about Francesca as their boss:

“Having had the privilege of being mentored by Francesca Renouard, I am honored to endorse her as a phenomenal structural engineer mentor. Since I joined the company while still attending school, her availability and willingness to assist have been invaluable in ensuring I have the skills and knowledge necessary for success. I am grateful for her mentorship and support. Francesca has a profound passion for historic renovations, consistently demonstrating her deep engagement and advocacy for preserving our local architectural heritage. Her technical knowledge and commitment to excellence in historic renovation projects are genuinely commendable. She inspires me and has instilled in me a deep appreciation for the importance of preserving our built environment.

In addition to her technical prowess, Francesca also displays outstanding leadership skills by fostering a positive work environment and promoting employee well-being through her thoughtful initiatives, such as organizing regular events to encourage team bonding and morale. Her dedication to creating a supportive and inclusive workplace culture contributes to our team’s happiness and fosters a collaborative and cohesive work environment.”

Lan Nguyen, EIT
SSF Staff Engineer

“If I could clone anyone in our firm it would be Francesca. She’s the first to raise her hand to attend client events, participate in association fund raisers, or volunteer to help organize an internal educational or social event. She’s consistently supporting SSF’s technical staff and promoting SSF externally.”

Heidi Maki, SSF Associate
Principal - Marketing and
Business Development

Business Development

Francesca has been an actively involved teammate from the start. Whether it’s participating in a client mixer, attending an association event for an organization that SSF supports, or attending educational opportunities, Francesca shows up. As she built her skills and attained her licensure, she moved beyond attending events to getting involved on committees and boards, as noted in the Service to Professional Organizations and Community Service section. She is a role model for new engineers and everyone in the firm. Her enthusiasm for SSF is contagious.

Francesca creatively finds opportunities to develop relationships, whether teaching Italian lessons at an architecture office or organizing client mixers. She quickly finds unique and engaging topics for conversation (attending a ballet performance, board games, fishing on the Willamette, etc.) that lead to building authentic relationships. She has organized client mixers with Graham Baba Architects, SHKS Architects, JTM Construction, Mithun, and Board and Vellum. She coordinates activities at the SSF office with professional organizations - like the Structural Engineering Association of Washington (SEAW)’s Young Members Group to have a happy hour at SSF. She represents SSF at annual historic preservation events and conferences and consistently attends the American Institute of Architects annual awards gala.

- ✔ Leadership skills
- ✔ Sustained career progress
- ✔ People skills
- ✔ Client relations
- ✔ Dedication
- ✔ Personal integrity



Francesca at the UW Career Fair

Recruitment and Student Outreach

Francesca is integral to SSF's recruitment and outreach to aspiring engineers. She is a University of Washington Husky through and through and has represented SSF at UW's annual Civil Engineering Career Fair.

Francesca is also frequently a part of job applicant interviews, helping SSF to assess and recruit potential new hires. Beyond her role in SSF's recruitment process, Francesca has offered office tours and discussions with current students to talk about what it's like to be a structural engineer. Her excitement for the work she does and the positive energy that she brings serve to inspire the next generation of young engineers.



Francesca dressed as El from Stranger Things

SSF Holiday and Social Planning Committees

In addition to being a leader in engineering, Francesca also plays a crucial role in promoting a fun and relaxed office culture. She is a member of the company's Social and Holiday Committees, often dreaming up new ways to bring entertainment and excitement to day-to-day engineering life. Over the years, she has organized office Olympics, shuffleboard tournaments, cocktail tastings, costume contests, and more. During the first two years of COVID, Francesca helped plan and coordinate personalized staff gift boxes and helped navigate how to make a virtual holiday party successful.

“She intuitively understands how to build trust and a rapport with staff in every department and at all levels. She takes personal responsibility for both external and internal relationship development and is integral to fostering our company culture.”

Chardie Byrne
SSF Managing Principal

1ST ANNUAL SSF OFFICE OLYMPICS

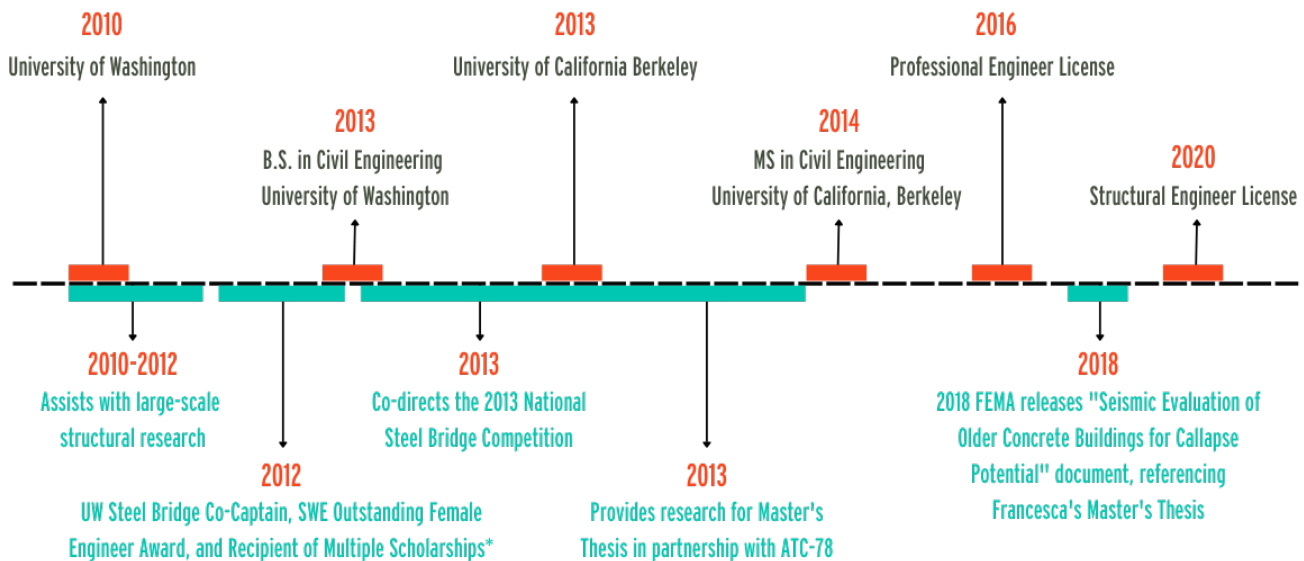
TEAMS:	BEER TASTING	PAPER AIRPLANES	Jenga / BOWLING	GINGERBREAD	NEP QUIZ OBSTACLE COURSE	CORNHOLE	FOREARM STRENGTH	GLIDERBOWL	SHUFFLEBOARD	TRICYCLE TIME TRIAL	FURBERBAND ARCHERY	FINAL RELAY	TOTAL
1st DILIP, OLIVIA DEREK, DAN M.	8	7/15	9+10 24/34	10/44	9/53	9/62	8/70	7/77					
SEAN JOHN, EVIN SEAN KING, JIM	6	6/12	5+2 17/19	5/24	5/29	8/37	9/46	3/49					
MAT, DAN SAY SCOTT, PETE K	2	4/6	7+5 13/18	9/27	9/36	3/39	10/49	9/58					
ZAYNE, RYAN A, BENJAMIN, JOELISH	8	2/10	10+7 20/27	4/31	7/38	5/43	6/49	4/53					
FRANCESCA JOANNA MELISSA, NATE	8	9/17	9+2 26/30	6/30	4/40	6/46	3/49	5/54					
2nd 3rd BART, MAC, BENJAMIN, JIMMER	5	5/10	4+6 14/20	5/23	7/30	7/37	4/41	8/49					
4th ROB M, CAMERIE JDE, KEVIN, ARIAN	8	3/11	10+9 21/30	7/37	4/41	10/51	7/58	6/64					
5th BRETT, KNEEL, COUS, SCOTT, RASHI ALAN	8	10/18	6+8 24/32	8/40	10/50	8/54	5/59	10/67					
TONY, JAKE, BETH, CHRIS, RYAN E.	8	10/17	+3	6/3									

Francesca's Office Olympics Team ultimately finished 5th

EDUCATION ATTAINMENT

Francesca Renouard, PE/SE

Leadership skills
 Inventiveness
 Sustained career progress
 Academic training
 Dedication
 Technical skills



University of Washington - BS in Civil Engineering

While studying for her Bachelor of Science degree, Francesca was dedicated to several extra-curricular activities within and outside the Civil Engineering department.

AISC/ASCE Steel Bridge Competition

Francesca was the Co-Student Director of the 2013 National Student Steel Bridge Competition hosted by the University of Washington. The competition featured 49 finalist teams with over 600 student participants from the US and Canada. Francesca worked closely with the AISC Director of Education for an entire year leading up to the competition and played a pivotal role in ensuring the event ran seamlessly. Francesca received an AISC Award of Appreciation for her work.

During her senior year, Francesca also served as Co-Captain of the University of Washington Steel Bridge team. Under her leadership, the team placed 4th at Nationals for Most Economical Design.

Structural Research Assistant

Francesca also worked as a structural research assistant during her years at UW. She aided in materials testing for several research projects, including strength tests of existing steel bridge rivets, shear tests of steel plate shearwalls, and compression tests of concrete columns used for Accelerated Bridge Construction.

Mock Trial Expert Witness

Outside of engineering, Francesca lent her technical public speaking skills to the University of Washington Mock Trial team. Francesca played various expert witness roles ranging from an entomology expert to a college chemistry professor. Francesca was a member of the first UW mock trial team to advance to the collegiate National Championship (in 2011), where the group received an honorable mention.



Francesca in front of the UW steel bridge

Scholarships:

- Mary Gates Leadership Scholarship (2012)
- Fred H. Rhodes Scholarship (2012-2013)
- [Society of Women Engineers \(SWE\) Outstanding Female Engineer Award \(2013\)](#)
- [Thornton Tomassetti Foundation National Scholarship \(2013\) \(link - page 37\)](#)
- [Structural Engineers Association of Washington \(SEAW\) Scholarship \(2013\)](#)

- Leadership skills
 Inventiveness
 Sustained career progress
 Academic training
 Dedication
 Technical skills



University of California, Berkeley - MS in Civil Engineering with Structural focus

Like her time at UW, Francesca continued to build her technical skills within and outside the requirements of the Master's program.

Masters Thesis

Francesca provided research in partnership with the Applied Technology Council project, ATC-78. The primary objective of ATC-78 was to develop a methodology to quickly identify critical factors that affect the collapse risk of non-ductile concrete buildings, a common construction type in historic structures. Francesca provided one of the draft methodology's first real-building case studies. Also, she developed a more accurate method of calculating a concrete structure's effective fundamental period, taking building strength and height into effect.

FEMA P-2018

In 2018, FEMA published a new document, "[FEMA P-2018 Seismic Evaluation of Older Concrete Buildings for Collapse Potential](#)", which utilized and referenced Francesca's master thesis work related to the fundamental period of a concrete structure.

Appendix G Effective Fundamental Period

ASCE/SEI 7 and ASCE/SEI 41 present equations for fundamental period of frame buildings as a function of either height or number of stories. These equations are useful for identifying a conservative set of lateral forces for strength design, as emphasized in ASCE/SEI 7 and the linear methods of ASCE/SEI 41. The methodology presented in this report places more emphasis on estimation of lateral drifts rather than forces. Furthermore, it is intended to be applied to individual buildings whose strength may vary widely from the minimum base-shear strength required by ASCE/SEI 7. Given these different objectives, it was desirable to develop alternative period equations.

G.1 Frame Buildings

As a starting point, an analytical study was undertaken to identify the effect of building strength and height on building period (Renouard, 2014). A series of four-, eight-, and 12-story tall frame buildings with uniform rectangular plans were designed for gravity loads plus a set of lateral loads having an inverted triangular pattern. Building heights were 46 feet, 90 feet, and 134 feet respectively. Target building base-shear strengths were $0.05W$, $0.10W$, $0.15W$, and $0.25W$, where W corresponds to the building weight.

Each building was assumed to have two perimeter moment-resisting frames in each direction designed to resist all the earthquake forces. This assumption allowed for simplified analysis models in which the buildings were modeled as two-dimensional frames, with each perimeter frame providing half the required lateral resistance. Each frame included six bays. Furthermore, the buildings were assumed to have symmetric plans so that the building response to lateral forces included minimal plan torsion.

Each building was designed using an algorithm that sized the columns for target longitudinal reinforcement ratios of 0.01, 0.015, 0.018, 0.02, 0.025, or 0.03. Beam sizes were varied to obtain typical reinforcement ratios. The following parameters were used to better emulate actual construction and ease member size selection:

- Column and beam sizes were changed every two stories.
- Column size was limited to no smaller than $12'' \times 12''$.

FEMA P-2018

G: Effective Fundamental Period

G-1

Excerpts from FEMA P-2018 document

Earthquake Engineering, for the National Institute of Standards and Technology, Gaithersburg, Maryland.

NIST, 2010c, *Evaluation of the FEMA P-695 Methodology for Quantification of Building Seismic Performance Factors*, NIST GCR 10-917-8, prepared by the NEHRP Consultants Joint Venture, a partnership of the Applied Technology Council and the Consortium of Universities for Research in Earthquake Engineering, for the National Institute of Standards and Technology, Gaithersburg, Maryland.

NIST, 2014, *Review of Past Performance and Further Development of Modeling Techniques for Collapse Assessment of Existing Reinforced Concrete Buildings*, NIST GCR 14-917-28, prepared by the NEHRP Consultants Joint Venture, a partnership of the Applied Technology Council and the Consortium of Universities for Research in Earthquake Engineering, for the National Institute of Standards and Technology, Gaithersburg, Maryland.

NZSEE, 2017, *Seismic Assessment of Existing Buildings*, New Zealand Society of Earthquake Engineering, <http://www.eq-assess.org.nz>.

Paterson, J., and Mitchell, D., 2003, "Seismic retrofit of shear walls with headed bars and carbon fiber wrap," *Journal of Structural Engineering*, Vol. 129, No. 5, pp. 606-614.

Paulay T., and Priestley M.J.N., 1992, *Seismic Design of Reinforced Concrete Masonry Buildings*, John Wiley & Sons, New York, USA.

Pessiki, S.P., Conley, C.H., Gergely, P., and White, R.N., 1990, *Seismic Behavior of Lightly-Reinforced Concrete Column and Beam-Column Joint Details*, NCEER-90-0014, National Center for Earthquake Engineering Research, State University of New York, Buffalo, New York.

Renouard, F., 2014, *Evaluation of a Methodology to Assess the Collapse Risk of Older Reinforced Concrete Buildings*, M.S. Thesis, University of California, Berkeley.

Saitoh, F., Kuramoto, H., and Minami, K., 1990, "Shear behavior of shear walls using high strength concrete," *Summaries of Technical Papers of Annual Meeting, Architectural Institute of Japan*, pp. 605-606 (in Japanese).

Scott, B.D., Park, R., and Priestley, M.J.N., 1982, "Stress-strain behavior of concrete confined by overlapping hoops at low and high strain rates,"

FEMA P-2018

References

G-11

Licensed Professional Engineer

Francesca became a Licensed Professional Engineer in 2016.

Licensed Structural Engineer

Francesca became a Licensed Structural Engineer in 2020.

- ☑ People skills ☑ Dedication ☑ Personal integrity ☑ Technical skills ☑ Community outreach/volunteer work



Historic Seattle

[Historic Seattle](#) is a public development authority established by a city ordinance in 1973. For more than 40 years, Historic Seattle has worked behind the scenes on feasibility studies and technical assistance for historic preservation. They stand up for buildings nobody else will protect by pursuing full-scale redevelopment of historic places.

Francesca is a member of Historic Seattle and joined the Real Estate Committee in 2021. The Real Estate Committee is responsible for:

- Reviewing the finances of Historic Seattle's properties.
- Making recommendations of properties that should be reviewed further by Historic Seattle's executives.
- Evaluating Requests for Proposal responses for work needed at Historic Seattle properties.

Her technical knowledge and passion for historic preservation bring value to Historic Seattle while fostering existing and new business relationships.

King County Landmarks Commission

Francesca was [appointed as a commissioner to the King County Landmarks Commission in January 2023](#). The commission is responsible for reviewing the following:

- Building nominations for landmark status
- Applications for Certificates of Appropriateness,
- Demolition requests

Jennifer Meisner has this to say about Francesca's nomination:

"We recruited Francesca for appointment to the King County Landmarks Commission because of her technical knowledge of existing building systems, expertise in historic building renovation, and passion for saving and rehabilitating places that matter to our community. In her short time on the Commission, Francesca has already shown her skill in offering quick but detailed analysis of potential material impacts of proposed changes to designated landmarks and clear guidance for applicants on avoiding problems down the road."

Jennifer Meisner, Historic Preservation Officer
King County Historic Preservation Program

City of Seattle Unreinforced Masonry Building (URM) Ordinance Technical Committee

The [URM Ordinance Technical Committee](#) is working with the City of Seattle on program requirements for the upcoming mandatory retrofit of hundreds of unreinforced masonry buildings identified as needing improvements for the safety of the occupants and community.

- Francesca is one of four engineers on the Technical Standard Task Group charged with providing a new retrofit standard to be introduced with the ordinance.



SERVICE TO PROFESSIONAL ORGANIZATIONS

Francesca Renouard, PE/SE

✔ Leadership skills ✔ People skills ✔ Dedication ✔ Personal integrity ✔ Technical skills ✔ Community outreach/volunteer work

ASAP!

Alliance for Safety, Affordability, and Preservation

Alliance for Safety, Affordability, and Preservation (ASAP!)

[ASAP!](#) is an independent organization formed by developers, building owners, and other stakeholders in response to the City of Seattle's proposed URM ordinance. Their goal is to work with the City to secure meaningful passage of an unreinforced building ordinance and to provide a means to finance those upgrades. Francesca's involvement with this committee and her participation on the City's URM Ordinance Technical Committee provides a crucial link between the two organizations.



Friends of Ravenna-Cowen National Historic District

Francesca sits on the board of the [Friends of Ravenna-Cowen](#), a non-profit corporation organized to celebrate, protect, and raise awareness of the historic neighborhood surrounding Ravenna Park. The neighborhood became a National Historic District in 2018 by the Department of Archeology and Historic Preservation. As a part of the Board, Francesca has:

- Helped run quarterly historic architectural tours through the national historic district.
- Coordinated volunteers to the organization.
- Participated in advocacy concerning protection of Historic Landmarks



Structural Engineering Association of Washington (SEAW)

While at UW, Francesca received a SEAW scholarship and was inducted into the SEAW Hall of Fame. She became a [SEAW](#) member in 2013 and joined the Existing Building Committee in 2018. In February this year, Francesca received an invitation to speak to donors at the annual Structural Engineers Foundation of Washington Luncheon (SEFW - the funding arm of SEAW) on May 4, 2023.



Washington Trust for Historic Preservation (WA Trust)

Francesca regularly supports the [Washington Trust for Historic Preservation](#), a nonprofit organization dedicated to promoting sustainable and economically viable communities through historic preservation in the state of Washington. She regularly represents SSF at Washington Trust's annual Sivinski Holiday and Vintage WA fundraising events and at the Revitalize WA annual 3-day conference.



Young Architect's Forum Project Tour for AIA Seattle

Francesca joined a close client, Jim Graham of Graham Baba Architects, to give the Young Architect's Forum participants a [tour of 2607 Second Avenue](#). This project is a complex seismic retrofit and adaptive reuse of a three-story heavy timber and concrete structure for office and retail space use. Francesca and Jim illustrated how existing buildings can be renewed and restored, maintaining historic structures as community assets.

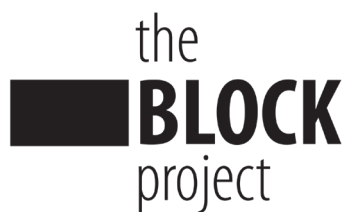
☑ People skills ☑ Client relations ☑ Dedication ☑ Personal integrity ☑ Technical skills ☑ Community outreach/volunteer work



Francesca volunteering at Food Lifeline

Food Frenzy / Food Lifeline

SSF has participated for 13 years as a supporter of [Food Lifeline's Food Frenzy](#) fundraiser for families that rely on schools' free or reduced lunch programs. In addition to generously donating annually, Francesca has volunteered with other SSF teammates several times to repackage food at the Food Lifeline warehouse and to sort and hand out food for elementary school families.



The BLOCK Project / Facing Homelessness

[The BLOCK Project](#) is a program in Seattle that builds small 150-square-foot detached additional dwelling units in people's backyards for use by someone experiencing homelessness. Facing Homelessness works with various organizations to pair people seeking homes with these backyard dwellings. SSF has been a team leader for six years for The BLOCK Project fundraiser. Francesca attends annually, donates generously, and has been the raffle ticket salesperson (pink boa and all) for two years at the live events. She also participated in a 'tart wrapping' activity for a local restaurant selling holiday tarts and donating the proceeds to Facing Homelessness.



WAsafe Post-Disaster Building Safety Assessment Evaluator

In 2017, Francesca received training and became a [WAsafe](#) volunteer. WAsafe is a network of trained professionals called upon to provide emergency building assessments following a disaster. This program allows Francesca and other engineers to contribute to their community in a meaningful and impactful way.

"Francesca epitomizes the definition of 'servant leader' - always willing to help when asked, and continuously finding ways to get the best out of coworkers and staff through continuous mentoring, goal and career development conversations, and leading by example. Outside the company, her work volunteering with local non-profits and commissions like Historic Seattle, the King County Landmarks Commission, and others further illustrates her leadership skills."

Zane Kanyer, PE/SE
SSF Principal

EXEMPLARY PROFESSIONAL DEVELOPMENT

Francesca Renouard, PE/SE

✔ Leadership skills ✔ Sustained career progress ✔ Dedication ✔ Personal integrity ✔ Technical skills ✔ Volunteer work



Francesca in front of the Seattle Star



Retrofit of Seattle's Soul Pole

Francesca constantly seeks opportunities to expand her knowledge and grow as an engineer and leader. Her dual passions for historic preservation and taking on new challenges have led her to work on a broad range of structures beyond just buildings that make Seattle *Seattle*. The retrofit of the Soul Pole, a historic wood sculpture at the Douglass-Truth Branch of the Seattle Public Library, and the retrofit of the beloved (Macy's) Seattle Star, which graces downtown every holiday season, are just two of her unique historic preservation projects that are important to maintaining community heritage.

Francesca couples her zeal for historic structures with her commitment to helping make the community better prepared for major earthquakes. Francesca's passion for the City of Seattle and its resiliency in the face of severe and inevitable seismic risk led her to join the Technical Standard Task Group for Seattle's upcoming Unreinforced Masonry (URM) ordinance.

- She is working tirelessly as one of four primary professional engineers consulting with city engineers to develop the technical standard for the ordinance. When launched, the URM ordinance will require seismic retrofit of Seattle's URM building stock (approximately 1200 structures), a building type known to be particularly vulnerable during earthquakes.
- She has completed dozens of building studies to help select and justify chosen performance objectives and qualification criteria for the ordinance.
- She is co-authoring portions of the new stand-alone technical document, which will be codified and serve as a guide for engineers to follow for URM retrofits under the ordinance.
- She has met directly with building owners, architects, developers, and other stakeholders to address their concerns and clarify what the URM ordinance will mean individually.

Francesca's body of work with existing buildings over the first ten years of her career has gained her acknowledgment as an emerging leader at SSF and the community at large.

FRANCESCA RENOARD PE, SE | ASSOCIATE PRINCIPAL

✔ Sustained career progress ✔ Academic training ✔ Technical skills



> Education

Master of Science in Civil Engineering
University of California, Berkeley | 2014

Bachelor of Science in Civil Engineering
University of Washington | 2013

> Registration

PE and SE, Washington

> Affiliations

City of Seattle URM Ordinance Task Force
Technical Standards Committee

ASAP (Alliance for Safety, Affordability, and
Preservation) Committee

King County Landmarks Commission

Historic Seattle, Member and Real Estate
Committee Member

Washington Trust for Historic Preservation
Member

Friends of Ravenna Cowen Historic District Board
Member

Structural Engineers Association of Washington
Existing Buildings Committee Member

The Civita Institute, Member

Experience

After serving as a summer intern for two years and completing her Master's Degree from UC Berkeley, SSF hired Francesca full-time in 2014. With a passion for historic preservation and adaptive reuse, she is an integral leader of the SSF Retrofit Team. She is actively involved with Historic Seattle, the King County Landmarks Commission, the City of Seattle's URM Ordinance Task Force, and the Washington Trust for Historic Preservation. Francesca enjoys working closely with clients, owners, and SSF staff to thoroughly review existing building structures and provide efficient and effective structural retrofit solutions.

Public / Public-use / Community

Alaska State Capitol Historic Seismic Evaluation and Retrofit, Juneau
Bishop Blanchet High School Ernie Rose Cafeteria/Commons, Seattle
City of Redmond Public Safety Building Seismic Improvements
Douglass Truth Library Retrofit of the historic "Soul Pole" / Seattle Public Library, Seattle
Immaculate Conception Church URM Seismic Evaluation and Retrofit, Seattle
Kirkland Women's Club Historic Seismic Evaluation and Retrofit, Kirkland
Langley Middle School Gym Seismic Evaluation and Retrofit, Langley
Refugee Women's Alliance Renovation, Seattle
Roslyn Old City Hall and Library Historic Seismic Evaluation and Retrofit
Sacred Heart Church Tower Seismic Retrofit, Clyde Hill
Seattle City Light Cedar Falls Gatehouse Seismic Evaluation and Retrofit, Cedar Falls
Seattle Fire Station #18 Renovation, Seattle
Seattle Magnuson Building 18 URM Adaptive Reuse of Fire Station for Outdoors for All, Seattle
Seattle Pool Renovations at Meadowbrook, Medgar Evers, and Queen Anne, Seattle
Seattle Public Library / Historic URM Carnegie Library Renovations for Columbia City, Fremont, Green Lake, Queen Anne, University, and West Seattle
St. Benedict's Church Seismic Evaluation, Seattle

St. Catherine School Seismic Assessment, Seattle
St. Thomas Church Seismic Retrofit, Tukwila
St. Thomas More Church Historic Seismic Evaluation and Retrofit, Lynnwood
The Perkins School Renovation, Seattle
University Coop School URM Seismic Evaluation and Retrofit Seattle
UW Anderson Hall Seismic Assessment, Seattle
Washington State Legislative Building Renovation, Olympia
Washington Talking Book and Braille Library Renovation / Washington State Library, Seattle
YWCA Building Study, Seattle

Commercial

1st and Yesler URM Office Building Seismic Evaluation and Retrofit, Seattle
419 Occidental/FX McRory's URM Seismic Retrofit, Seattle
503 Westlake/Antique Liquidators Seismic Evaluation and Retrofit, Seattle
2607 Second Avenue Office Building Seismic Evaluation and Retrofit, Seattle
5201 Ballard Ave. Seismic Evaluation and Retrofit, Seattle
Bouldering Project Gyms in Austin, Minneapolis, Salt Lake City, Seattle, and Tempe
Branom Instrument Building Seismic Evaluation and Retrofit, Seattle
Lowman Hanford Building URM Historic Seismic Evaluation and Retrofit, Seattle
Metropole Building URM Historic Seismic Evaluation and Retrofit, Seattle
Microsoft Fiscal Year 2019 Seismic Risk Analysis, Redmond
Oddfellows Building URM Seismic Evaluation, Ellensburg

SIGNIFICANT PROJECTS - EXISTING BUILDING EXPERTISE

Francesca Renouard, PE/SE

✔ Leadership skills ✔ Inventiveness ✔ People skills ✔ Client relations ✔ Academic training ✔ Technical skills

Francesca has been a member of SSF's retrofit team her entire career, starting as an intern in 2012 and moving up the ranks to become a team principal and leader. As her knowledge and experience has grown, so has her client base and complexity of projects. In total, Francesca has provided engineering for over 100 existing building renovations and assessments. A sampling of her most significant projects include the following:



West Canal Yards, Seattle, WA

Francesca is the Structural Project Manager for the \$23-million, 147,000-square-foot adaptive reuse of a fish processing plant on a nine-acre waterfront site, reinvigorating Seattle's under utilized industrial waterfront. The site is in a high-seismic zone and sits on 30 feet of decaying wood debris, requiring thoughtful solutions for seismic resilience and expanded floor space. The project introduces an increased floor plan and removes full-height pre-fab concrete plank walls to provide waterfront views and a connection to the Lake Washington ship canal.



Green Lake Carnegie Library Renovation, Seattle, WA

Francesca is the Project Manager on multiple projects for the Seattle Public Library, including the full seismic retrofit and comprehensive renovations of the Green Lake, University, and Columbia City historic Carnegie Libraries. The structural retrofits are designed to be highly resilient, meeting above-standard performance objectives to enable the libraries to serve as disaster relief centers. Francesca's mindfulness towards creating efficient structural solutions is crucial to each project's goal of achieving LEED Gold Certification. Francesca also played an integral role in helping the Seattle Public Library prepare and qualify for FEMA grant funding, providing significant cost savings to the project.



Metropole Building Adaptive Reuse, Seattle, WA

Francesca is the Structural Project Manager on the adaptive reuse and renovation of the Metropole Building. The Metropole is an icon of the Pioneer Square District and one of the few surviving buildings of the 1889 Great Seattle Fire, making it one of the oldest structures in the city. The building will have a mixed-use program of community spaces focused on social justice and equity and is designed to meet sustainability goals, including: LEED Platinum, aspects of the Living Building Challenge, The Seattle 2030 District, and Salmon-Safe Certification. Francesca tackled many unique structural challenges for the project, such as the reconstruction of two floors destroyed during the 1949 Olympia Earthquake, intricate seismic analysis factoring in the site's liquefiable soils, and complex repairs stemming from the building sitting vacant for multiple decades.



Penrose Hotel Renovation, Walla Walla, WA

Francesca was a Project Engineer for the Penrose Hotel renovation in Walla Walla, Washington. The Penrose is a National Register-listed historic structure built in 1907. Francesca designed a complete seismic retrofit of the historic building and a linked connection to a new adjacent four-story companion building. Francesca joined the project team after the design had begun and immediately proved her worth by identifying creative structural solutions to reduce the structural scope and provide significant cost savings to the client.



Alaska State Capitol Renovation, Juneau, AK

Francesca was a Project Engineer for the full seismic retrofit and renovation of the Alaska State Capitol Building. The three-phase project included the renovation of the Tokeen marble portico (local Alaska marble from the Prince of Wales Island), complete retrofit of the main structure, and replacing precast concrete panel cladding. Francesca provided a detailed seismic analysis of the historic structure by creating a three-dimensional computer model for the project, which helped inform the seismic retrofit design. The project earned an AIA Alaska 2018 Award of Merit.

- ✔ Leadership skills
- ✔ Sustained career progress
- ✔ Dedication
- ✔ Personal integrity
- ✔ Technical skills



March 8, 2023

Washington's female engineers are elevating the built environment and company culture

By [EMMA HINCHLIFFE](#)
A/E Editor

Public perception tends to consider engineering a male domain, and while it is true that the majority of practicing engineers are male, for many years women have been working and having a big impact in this field. In Washington a growing number of women are making their mark on both the built environment and company culture at some of the state's largest engineering firms.



Rendering by ZGF Architects [\[enlarge\]](#)

A nearly all-female design/build team is working on Seattle Storm's new training facility in Interbay, scheduled to break ground March 27.

In honor of Women In Construction Week I sat down with some local female engineers to talk about their experiences and career highlights. Here are my key takeaways:

Common reasons and interests attract women to engineering

All the women I interviewed traced their interest in engineering to an aptitude for math and problem solving coupled with a sense of the cultural importance of the built environment.

Francesca Renouard, a structural engineer and project manager who has worked for Swenson Say Faget for 11 years (two as an intern and nine full-time), explained that she felt destined for a career in the A/E/C industry from birth. Both Renouard's parents are architects with a specific interest in historical preservation and adaptive reuse projects. "I grew up visiting my parents project sites and had a love for historic buildings and a sense of the importance of preserving them from a young age," she explained. "My sister is now an architect at Olson Kundig but I was always more interested in math which made structural engineering a better fit."



Renouard

An interest in preservation and a recognition of the impact of the built environment, along with the math bug, also led **Kelly Lowe**, a structural project engineer who has been with Coughlin Porter Lundeen for six-and-a-half years, to the field. Lowe's colleagues **Bailey Cook**, a civil project engineer who has been with CPL for seven years, and **Christen Sanders**, a structural project manager at the firm for a decade, said a dual passion for creative outlets and math got them interested in engineering.

While each of the women had their own path to get to where they are today one thing was the same across the board, they all love the job because they get to work in a field where you have a tangible and measurable impact on the world.

- Leadership skills
 Sustained career progress
 Dedication
 Personal integrity
 Technical skills

...continued **Things are changing**

When each of the women were studying to become an engineer they noted an absence of female role models and none personally knew any women in the profession. “It was hard not really having any female mentors or people to look up to in the field,” Lowe explained. “I studied Architectural Engineering at college and in that major there were actually more women than men, we also had several female professors, but when I would take classes solely in the engineering field that was not the case,” Sanders shared. Cook, who studied Civil and Environmental Engineering at the University of Washington, also found that most of her classmates, and all her professors, were men.

This is however changing and while challenges remain, in particular it is still rare to see women engineers in top-level management rolls, more and more women are making up engineering teams in Washington. For example, at SSF around 30% of the firm's engineers are women. “With the younger generation and engineers at the start of their career at CPL we are seeing more and more women in the field,” Lowe added.

The women I spoke to are a big part of this change and will become the role models they never had. “I think I can speak for many women in the industry when I say that we take mentorship and being a resource for the next generation of female engineers really seriously,” Cook shared.

Cook and Lowe have both mentored for ACE Seattle, a free program for high school students that pairs students with local firms and mentors to provide hands-on industry experience, and introduces them to diverse career options under the A/E/C umbrella.

“In my experience this is a field and community that wants to see women thrive and there are now lots of opportunities out there for young women interested in becoming an engineer,” Renouard said. “My advice to those women would be to ask for help and don't be afraid to be vocal.”

...continued **Women are impacting the built environment**

Female visions, hand and footprints are all over Washington's built environment, from preserved historic buildings to new marquee projects. I asked the women to share some of their favorite projects and proudest career moments.

Cook highlighted her work in SLU and in particular the community- and pedestrian-oriented Arbor Blocks development, as well as her work for Seattle Storm.

Renouard is most passionate about adaptive reuse projects. Career highlights to date include being able to work on all six of Seattle's existing Carnegie libraries. Another current adaptive reuse project she is excited about is the renovation of the Metropole Building in Pioneer Square, which the Satterberg Foundation is developing into boutique office and community space focused on social justice and equity. Renouard is also currently working with the city of Seattle on a new technical standard for its forthcoming ordinance for URM buildings.

For Lowe seeing the completion of West Main has been a highlight as she began working on that project in her second year at CPL. Sanders mentioned her work in the K-12 space and said her marquee project is the Northshore Concert Hall at Inglemoor High School.

Emma Hinchliffe can be reached by [email](#) or by phone at (206) 622-8272.

✔ Personal integrity



Francesca grew up in a half-Italian family, spending summers in the countryside north of Rome on the banks of the River Tiber. She and her husband, Stephen, wed at her grandparents' villa in late 2021, and they often spend vacations sipping Umbrian wine and eating carbonara at local restaurants.

Francesca and Stephen recently bought a hundred-year-old craftsman house in a historic neighborhood in Seattle, and they spend much of their free time lovingly caring for their new (old) home. One of Francesca's favorite ways to get through Seattle's winter is crocheting as the rain falls and the fireplace roars. On cold, rainy evenings, she loves having her friends over to play board games, which she has a solid strategic knack for from her high school chess team days.



Come summertime, they love to venture into the mountains to camp and fly fish. Francesca is an avid dry fly angler with favorite fishing holes in Washington, Montana, and Colorado. They also dedicate a few summer weekends to kayaking on the Puget Sound with crab pots and inviting friends for a giant crab boil after a successful catch.



As the summer ends, the rain signals the start of one of Francesca's favorite hobbies: foraging for mushrooms! Francesca's nonna taught her the joys of scouring the Italian forests for porcini mushrooms, a tradition she has continued in the woods around Seattle.

Francesca is a great supporter of the arts; a favorite Friday evening might include catching *A Midsummer Night's Dream* put on by the Pacific Northwest Ballet or Vivaldi performed by the Seattle Symphony. Even while working, Francesca frequently hums to Tchaikovsky playing on her headphones.



When she can find the time, Francesca loves to travel with Stephen and her mirrorless camera slung around her neck. They recently returned from a trip to Thailand and Japan, where she captured the beauty of ancient temples and flowers in spring bloom through her photography.