Wrangell Marine Service Center, Wrangell, AK. Structural Engineer/CA&CI. Mr. Sams provided structural design services to design the reinforced concrete paving that support the operation of the 300-ton travel lift used to service the facility. Finite element modeling was used to develop the slab-on-grade concrete stressed from wheel loads. This project was very difficult in design due to part of the site being constructed over old sawdust fill from the saw mill that was previously located on the site. Mr. Sams conducted research to develop a soil modulus for the sawdust based on numerous USFS studies conducted on road building with timber sawmill waste. During construction Mr. Sams provided CA&CI services and spent two summers in the field conducting daily inspections during the construction phases of the project.

CBJ Cruise Ship Terminal Staging Area Phase 1, Juneau, AK. Structural Engineer. Mr. Sams was the design project manager for the fixed pier and uplands development project which included 10,000 sq. ft. fixed pier and a concrete paving design. The fixed pier entailed steel piles, pile caps, timber stringers and decking. The new structure bridges the gap between two sections of the existing Seawalk in downtown Juneau between the Tram building and the Visitor Center. Mr. Sams coordinated and designed portions of the bank of 12 electrical conduits below the new dock structure that were installed to facilitate a future electrical intertie with the Cruise Ship Berths. Mr. Sams coordinated with all disciplines during the design and construction phase of the project to provide a project on-schedule and under budget.

City and Borough of Juneau Port Customs/ Visitor Center, Juneau, AK. Structural Engineer. Mr. Sams provided support during the design phase of this project with designing the pile foundations for two docks supporting one story buildings on each structure. Mr. Sams also supported the design effort by designing the seismic hold-downs for the Visitor Center building. Mr. Sams was involved in the design of the concrete retaining wall supporting part of the dock structure. The concrete retaining wall was also supported on piles to prevent settlement and mitigate any long-term erosion.

THANK YOU FOR REVIEWING OUR NOMINATION. FOR MORE INFORMATION, PLEASE CONTACT DICK SOMERVILLE, P.E., VICE PRESIDENT, PND ENGINEERS, INC. 907.586.2093 OR DSOMERVILLE@PNDENGINEERS.COM

Education Background:

B.S. Civil Engineering,
University of Alaska Fairbanks

Professional Registration:
Civil Engineer:
Alaska #14051

Structural Engineer:
Alaska #126427

Professional Organizations and Community Service

- ASCE Member: 2009-Present
- ASCE Juneau Branch Officer and President 2009-2011
- ACI Alaska Chapter Director 2018-Present
- ACI Concrete Field Technician Proctor: 2017-Present
- SEAAK Board Member, Southeast Representative: 2018-Present
- JDHS Volunteer Science Fair Judge: 2017

Mark Sams, P.E., S.E.

PND Engineers, Inc—Principal Engineer

PND ENGINEERS, INC.

2020-2021 ASCE Alaska Section - Juneau Branch
Nomination for:

Outstanding Engineer of the Year Award

Nomination by: PND Engineers, Inc — Juneau Office
9360 Glacier Highway, Suite 100
Juneau, Alaska 99801

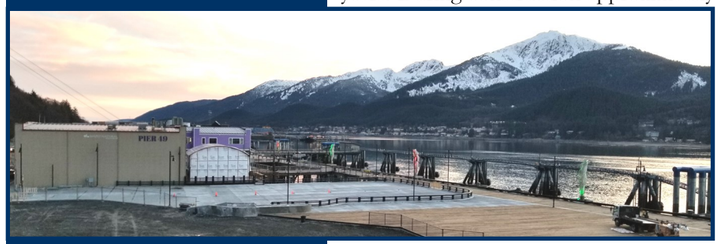
Mr. Sams is a principal engineer at PND Engineers, Inc.'s Juneau office with over 12 years of field and office professional civil and structural engineering experience throughout Alaska. Mr. Sams has designed and managed numerous projects ranging in size and complexity throughout Alaska and no project is too small or too large for Mr. Sams in his home community. Mr. Sams has provided engineering services as a structural design manager, contract administrator and construction inspector on numerous projects in Juneau involving structural, marine infrastructure, buildings, bridges and heavy civil work. He has extensive experience designing all facets of building and marine projects including: structural steel, concrete, masonry, aluminum and timber components. Mr. Sams has provided assistance with water, sewer, and stormwater drainage work on civil projects. His design experiences include finite element modeling of complexe 3D structures, reinforced concrete paving and developing Mathcad calculation packages. Mr. Sams appreciates working with clients from both the public and private sector and strives to provide valuable engineering assistance with every project he is involved with.

Engineering Achievements in 2020-2021

Downtown Waterfront Improvements, Juneau, Alaska. Project Management/Structural Engineering/Construction Administration. During the design phase of the project, Mr. Sams developed the structural design of the dock facility consisting of 35,000 square feet of new dock surface, a 400 foot long pile supported retaining wall and new uplands concrete paving. The site work included installing utilities to support a future building(s) that may be constructed on the dock. The structural design required extensive modeling to determine reactions from both vertical and lateral loading which included a potential for a truck crane that may be utilized in the future building construction or dock extension to the south. The dock was also designed with the foundation for a future shelter building that was moved to a second phase of the construction. Throughout the course of the design phase, Mr. Sams coordinated with a number of disciplines including electrical engineers, architects, and landscape architects to sure all of the structures could support various dock components such as light poles, soil in planters, and the vehicle railing.

To accelerate the construction phase of the project, Mr. Sams worked with CBJ to develop a number of items that could be grouped into an owner supplied procurement contract so that the concrete retaining wall construction could begin shortly after the notice to proceed was awarded. The procurement contract included all of the retaining wall reinforcement, structural steel imbeds, and steel pipe piles.

Once the construction project was awarded, Mr. Sams served as the single point of contact between the contractor and the owner, oversaw contractual issues, and managed a team of inspectors during construction. The construction phase of the project lasted approximately 1.5 years. During construction approximately $1 million dollars' worth of work was deleted through change orders to accommodate the potential for a future second building structure to be added to the dock. Also, significant redesigns of the driveway entrance were developed to accommodate the DOT driveway permit, and infrastructure was added for future electric bus charging. Mr. Sams worked to stay ahead of the contractor to prevent unneeded materials from being fabricated or installed prior to issuing the changes, saving the CBJ from significant costs.



2020-2021 Continued

Kensington Mine Projects, Juneau, Alaska. Project Manager/Structural Engineer/Construction Administration. Mr. Sams worked on a number of small projects for Coeur Alaska at their Kensington gold mine, including the Mobile Maintenance Shop Mr. Sams designed in 2019. Mr. Sams continued to provide support during construction. This project consisted of a concrete and steel frame foundation for a new tent structure that was partially supported by shipping containers.

USFS Dan Moller Outhouse Replacement. Project Manager/Structural/Civil Engineer. Mr. Sams provided structural engineering assistance for the USFS on the replacement of the outhouse structure and a new covered walkway at the Dan Moller public use cabin facility on Douglas Island. The project included working with all project stakeholders to develop a waste storage system that would reduce and provide easier servicing of the storage tanks. The many different user groups for the site posed challenges to provide year-round access to the outhouse facility with snow depths that reach 20+ feet deep some years. Due to the elevation of the site, the building structures and foundations needed to account for higher than typical Juneau snow loads.

USFS Anan Bear Observatory. Project Manager/Structural Engineer. Mr. Sams worked with Corvus Design and the USFS to develop the structural plans for the replacement of the existing bear observatory platform at Anan near Wrangell Alaska. The remote aspect of the site and the shallow bedrock provided unique challenges for supporting the new structure. Mr. Sams provided a flexible foundation design that could use either a rock anchor or a concrete pole foundation based on soil depths encountered at the site. The project also included a two-story aluminum spiral staircase to access two lower observation decks. The spiral stair case allowed for a lower site impact to access the lower decks and required designing for flood loading when the river water level is high.

USFS Raven's Roost Cabin Design/Build. Project Manager/Structural Engineer. Mr. Sams assisted Rainforest Contracting for the design of a new public use cabin for the USFS near the Petersburg airport. The elevation of the cabin site required accommodating increased snow loads and part of the roof structure. Mr. Sams was able to develop a roof framing system that would support the higher-than-normal snow load and accommodate the use of transparent roofing panels over part of the structure.

USCG Sitka Moorings Rehabilitation. Project Manager/Construction Administration. Mr. Sams assisted the USCG with construction oversight of various repairs to their dock facility in Sitka, AK. As the Engineer of Record's representative, Mr. Sams conducted site inspections during construction, provided submittal review assistance, and worked with USCG staff to develop alternative details to address deficient items installed by the Contractor.

Eareckson Air Station Dock Repair. Shemya, AK. Project Management/Structural Engineering/Coastal Engineering/Cost Estimating. Mr. Sams provided 15% design calculations for repairs to an existing sheet pile dock located at the end of the Aleutian Island Chain. This project had a very short time frame to develop repair concepts, provide limited calculations and a design narrative for a long-term repair project to address damage to the facility from a winter storm. The design criteria included a design wave greater than 30' based on the lack of natural protection from the weather at the site. Cost estimating and project scheduling was a challenge to determine the amount of temporary support materials and permanent materials that would be required for construction, the length of time required to barge materials to the site, and the shear size of the structures required to resist the design forces.

Eldred Rock Lighthouse Concrete Repairs Juneau, AK. Structural Engineer/Condition Assessment. Mr. Sams provided support to the Eldred Rock Lighthouse Preservation Society as they continue to restore the historical lighthouse on Eldred Rock. Mr. Sams conducted a site visit to inspect the existing condition of the lighthouse concrete walls and assess the island for a possible new marine landing. Mr. Sams provided a system of repair materials to repair concrete damage including cracking, delamination, and interior water damage to inside face of the concrete walls.

Engineering Achievements Prior to 2020

Port of Juneau Cruise Ship Berths, Juneau, Alaska. Structural Engineer/Construction Inspection. Provided structural design, project management and construction inspection services on this $54 million project for two new offshore floating concrete pontoon docks in downtown Juneau. During design Mr. Sams provided structural design services for both the north and south approach docks. During and during construction he managed a staff of 5 inspectors working two shifts a day and worked with the Owner and the Contractor to resolve contract disputes and assisted the Owner with the contract administration.

Statter Harbor Boat Launch Facility, Juneau, AK. Structural Engineer. Mr. Sams designed the timber canopy structure at the Statter Harbor Boat Launch Facility. The design consisted of concrete footings with steel columns and a timber roof structure. The overall geometry of the roof and the roof structural members were coordinated with the Owner and glulam beam suppliers to provide a visually appealing curved roof structure that maximizes the usable covered space without a gutter or drip line. Mr. Sams designed the curved roof surface using a red cedar decking supported by yellow cedar beams to provide a contrasting appearance to the underside of the roof. Using roof decking also reduced the number of roof beams required, since the decking could span a greater distance than typical plywood construction. The curved roof structure allows the roof to drain and shed snow over a retaining wall, while also providing for an unobstructed view of the harbor and Admiralty Island. Mr. Sams used concealed knife plate connections to connect timber members together for a more aesthetically pleasing timber structure. The structure was designed for the prescribed local building code wind and seismic loads as well as the local snow loading.

USCG Rescue 21 Tower Foundations, Southeast AK and Kodiak, AK. Structural Engineer/Construction Administration. Mr. Sams provided structural foundation designs for (4) remote tower sites. Two of the sites were located in Southeast Alaska and two were located in Kodiak. Foundations designed included foundations for 60' tall truss towers without tension cable supports. The designs consisted of rock anchors to resist uplift forces that could be installed using hand operated drill systems. The foundation systems required reducing mass as much as possible since all of the materials were brought to the site with a helicopter and placed by hand. During construction at one of the sites, the soil conditions differed from the geotechnical report and required a quick redesign and retooling from 6 foot deep rock anchors to 25 foot deep soil anchors to get the tower installed before winter conditions shut down the construction season.