Gabriela Arce Aita, MSE-Eng

Education

MSE. Civil Engineering (Structural Engineering), University of Texas at Austin, Austin, Texas, USA, 2002

Civil Engineer, University of Costa Rica, 1999

Registrations

Costa Rican Association of Engineers and Architects (CFIA), IC-9304, 1999

Affiliations

American Institute of Steel Construction (AISC)

Technical Committee of Costa Rican Seismic Code, Chapter 10

Costa Rican Society of Structural and Seismic Engineer (ACIES)

Costa Rican Society of Engineers and Architects (CFIA)

Costa Rican Society of Civil Engineers (CIC)

Skills/Training

Dispute Bord Training, Dispute Resolution Board Foundation, Costa Rica, 2017, 2018

vice PRESIDENT – DLZ CARBON, SENIOR PROJECT MANAGER AND structural ENGINEER

Gabriela serves as Vice President of DLZ Carbon in Costa Rica (formerly Carbon Ingeniería). She is focused on marketing, business development and client relations. Additionally, Gabriela provides services in the renewable energy and industrial markets. She has extensive experience as project manager, hydropower engineer and water infrastructure civil and structural engineer for over 20 years. Gabriela has comprehensive expertise directing feasibility studies, basic designs, final designs and construction supervision for over 30 small and medium hydropower plants in Costa Rica, Guatemala, Honduras, Nicaragua, Panama and Guyana. As Head of the Structural Engineering Department, Gabriela oversees all structural engineering related tasks; she has extensive experience in pipe and penstock design, water containing structures and powerhouse design, concrete and steel supports for mechanical equipment, industrial foundation, seismic design of non-building structures, technical specifications, cost estimates and contract documents. She has served as a permanent member of the Costa Rica Seismic Code Steel Technical Committee for more than 13 years.

Project Experience

HYDROPOWER

* **Kato hydropower plant (150 kW), Kato Village,** **Cooperative Republic of Guyana**. Project manager. Final design of hydropower infrastructure, weir, bottom outlet, intake, desander, surge chamber, penstock, powerhouse building and steel gates. Bill of quantities and civil works specifications. Technical support during construction (2019-2021)
* **Capulin hydropower plant (50 MW), Atenas, Costa Rica**. Project manager. Final design and construction supervision of hydropower infrastructure, 50m high concrete gravity dam (RCC), intake, bottom outlet and 6.5m diameter conveyance steel pipe and supports (2016-2018).
* **Bonilla 1320 hydropower plant (12.9 MW), Turrialba, Costa Rica.** Project manager. Final design of hydropower infrastructure, reservoir, conveyance pipelines, surge chamber, penstock, access roads, bill of quantities, budget and civil works specifications (2016-2019).
* **Bonilla 510** **hydropower plant (12.9 MW), Turrialba, Costa Rica.**  Project manager. Final design of hydropower infrastructure, reservoir, conveyance pipelines, surge chamber, penstock, access roads, bill of quantities, budget and civil works specifications (2016-2019).
* **Pencaligüe hydropower plant (22.5 MW), Honduras**. Senior structural engineer. Final design QC revision (2015).
* **San Martín hydropower plant (5.7 MW),** **Matagalpa, Nicaragua.** Project manager. Final design and technical support during construction of hydropower infrastructure. Concrete and embankment dams, intake, bottom outlet, steel pipe and 1.7m diameter steel penstock, steel surge tank, powerhouse building, steel gates and access roads (2015-2017).
* **Negros 2 hydropower plant (27.8 MW), Upala, Costa Rica.** Senior structural engineer. Final design QC revision (2012).
* **Hydropenta hydropower complex (19.2 MW), Matagalpa and RACCN, Nicaragua.** Senior Structural engineer. Structural design of 1.8m diameter steel penstock and support. QC revision (2016-2018).
* **Oxec II hydropower plant (56 MW), Guatemala.** Owner’s engineer. Basic design of the hydropower project, technical support during EPC contract negotiations, revision of EPC’s final design drawings and documents (2014-2015).
* **Raaxhá hydropower plant (7.5 MW), Guatemala.** Project manager. Final design of hydropower infrastructure, powerhouse building and intake. Revision of final design of concrete dams and embankment dams (2014-2015).
* **Chucas hydropower plant (50 MW), Mora, Costa Rica**. Senior structural engineer. Structural design of a 6.0m diameter steel penstock and supports, powerhouse building stability analysis. QA revision (2012-2014).
* **Bijagua hydropower plant (17 MW), Upala, Costa Rica.** Senior structural engineer. Structural design of 2.3m diameter steel penstock and supports. Final design QC revision (2012).
* **San Lorenzo hydropower plant (8 MW), Chiriquí, Panamá.** Project manager. Final design and construction supervision of hydropower infrastructure, concrete gravity dam, intake, chambers, conveyance channel, surge chamber, steel penstock and powerhouse building (2011-2012).
* **Los Laureles hydropower plant (4.5 MW), Atlántida, Honduras.** Senior structural engineer. Structural design of surge chamber, 1.8m diameter steel penstock and supports. Civil design of reservoir and access roads (2011).
* **Candela II hydropower plant (0.6 MW), Panama.** Senior structural engineer. Structural design of concrete gravity dam, intake, bottom outlet and desander (2011).
* **Pantasma hydropower plant (13 MW), Jinotega, Nicaragua.** Project manager. Final design of hydropower infrastructure, concrete gravity dam, intake, bottom outlet, conveyance steel pipe, 1.25m diameter steel penstock, steel surge tank, powerhouse building, access roads, steel gates, technical specifications (2009-2011).
* **San Juan hydropower plant (6.2 MW), Atlántida, Honduras.** Structural engineer. Structural design of powerhouse building (2009).
* **San Juancito hydropower plant (2.7 MW), Atlántida, Honduras.** Structural engineer. Structural design of desander, surge chamber and conveyance steel pipe (2009).
* **Chamelecon hydropower plant (11 MW), Santa Barbara, Honduras.** Structural engineer. Structural design of steel surge tank, 2.4m steel penstock and supports, technical specifications for penstock and steel gates (2008).
* **Piedras negras hydropower plant (0.7 MW), San José, Costa Rica.** Structural engineer. Structural design of intake, concrete gravity dam and bottom outlet (2008).
* **El Encanto hydropower plant (8.4 MW), Puntarenas, Costa Rica.** Structural engineer. Structural design and construction supervision of concrete gravity dam, intake, steel surge tank, steel penstock and supports, powerhouse building and access bridges. Civil design of access roads (2007-2008).
* **Canalete hydropower plant (17.5 MW), Upala, Costa Rica.** Structural engineer. Structural design of intake, concrete gravity dam and bottom outlet (2007- 2008).
* **Tizingal hydropower plant (4.6 MW), Chiriquí, Panama.** Structural engineer. Structural design of steel penstock river crossing (2007).
* **Algarrobos hydropower plant (8.5 MW), Panama.** Structural engineer. Structural design of powerhouse building (2007).
* **San Carlos hydropower plant (4.1 MW), Honduras.** Structural engineer. Structural design of concrete gravity dam, intake, bottom outlet, surge chamber and steel penstock (2006).
* **Cortecito hydropower plant (5.3 MW), Honduras.** Structural engineer. Structural design of steel penstock and powerhouse building (2006).
* **Cuyamapa hydropower plant (10.5 MW), Honduras.** Structural engineer. Structural design of steel surge tank, concrete gravity dam and bottom outlet (2006).
* **Cuyamel hydropower plant (7.8 MW), Honduras.** Structural engineer. Structural design of intake, concrete gravity dam and bottom outlet and steel penstock (2004- 2005).
* **Piedra candela hydropower plant (0.5 MW), Panamá.** Structural engineer. Structural design of steel penstock and powerhouse building (2004).
* **La Joya hydropower plant (50 MW), Tucurrique, Costa Rica.** Structural engineer. Structural design and construction supervision of intake, access bridge, conveyance channel, concrete gravity dam, bottom outlet and powerhouse building (2003- 2005).
* **La Lucha hydropower plant (0.75 MW), City, Costa Rica.** Senior structural engineer. Structural design of steel support for 1.7m diameter penstock (2015-2016).

RENEWABLE ENERGY PROJECTS

* **Las Pailas geothermic power plant (35 MW), City, Costa Rica**. Structural engineer. Structural design of BoP foundations (2009).

WATER SUPPLY

* **Final design and construction supervision for the water supply program for Limon, Guacimo, Jaco y Quepos – Manuel Antonio; and sewer system for Moin, Costa Rica. No.2019LI-000014-PRI**. Senior structural engineer specialist. Final design and construction supervision of water supply infrastructure (on going).
* **Feasibility and basic design for the water supply systems for Siquirres, Guapiles, Acosta, Puriscal, Tilaran, Jicaral, Coto Brus y Dominical - Dominicalito, Costa Rica. No.2019LI-000012-PRI**. Executive director. QC revision and executive management of the contract (on going).
* **Basic studies and final design for the reconstruction of several pipe river crossings for the Buenos Aires, Colonia Libertad, Pata de Gallo, Río Negro and Zapote water distribution systems.** **No.2019CNE-00004-AyA, Upala, Alajuela, Costa Rica.** Project manager of basic studies and final design. Director of civil and structural final design of 16 river crossings for potable water system.
* **Basic studies and final design for the reconstruction of several pipe river crossings for the Higuerón, Pueblo Nuevo, Llano Azul, El Porvenir and Canalete water distribution systems. No.2018CNE-00002-AyA. Upala, Alajuela, Costa Rica.** Project manager of basic studies and final design. Director of civil and structural final design of 16 river crossings for potable water system.

mining

* **Crucitas Gold Mine, Alajuela, Costa Rica**. Structural engineer. Structural and foundation design of Process Plant and industrial buildings.

structural design

* **300m3 Elevated steel tank, AyA No.2018CDS-00070-PRI, Costa Rica**. Project manager. Structural design of elevated Steel tank and support structure, drawings, technical specifications and budget (2018).
* **Foundation design for elevated steel tanks San Gerardo de la Rita y Paso Tempisque Carrillo, AyA No.2019CDS-00149-PRI, Costa Rica**. Project manager. Structural design of foundation design and review of the design of 200m3 elevated steel tanks, drawings, technical specifications and budget (2019).
* **Oficentro Alquimia design, San Jose, Costa Rica**. Structural engineer. Structural design of three-story office building 1600m2 (2003).
* **Fructa warehouse design, Limon, Costa Rica**. Structural engineer. Structural design of warehouse building 1600m2 (2003).

PREVIOUS WORK EXPERIENCE

* **Rutherford & Chekene Consulting Engineers**. **San Francisco, California**, **USA**. Structural Designer, 2002-2003. Structural and seismic design of concrete water containing structures for Los Angeles City Aquarius; QB3 Laboratory Building University of California at San Francisco, structural design of eccentrically brace frames connections; Laguna Honda Hospital Replacement Program, structural design of eccentrically brace frame connections.
* **University of Texas at Austin, Texas, USA**. Graduate Research Assistante. 2000 -2002. Graduate coordinator of experimental research Impact of Higher Strength Steels on Local Buckling and over strength of Links in Eccentrically Braced Frames. Design, construct, operate and analyze a full-scale setup of a link
* **CARBON Ingeniería S.A – ESTRUCONSULT S.A. San José, Costa Rica**. Structural Engineer. 1999, structural design of several residential and commercial buildings.

PUBLICATIONS

* CHAVES, M., ARCE, G, VARGAS, T, “Implementación de metodología para el diseño estructural de vigas – anillo en tuberías de presión”. Métodos y Materiales, Laboratorio Nacional de Materiales y Modelos Estructurales. Volumen 7. 2017
* VARIOS, ARCE, G, “Comentarios al Código Sísmico de Costa Rica 2010”, Colegio Federado de Ingenieros y Arquitectos. Costa Rica. 2013.
* VARIOS, ARCE, G, “Código Sísmico de Costa Rica 2010”, Colegio Federado de Ingenieros y Arquitectos. Costa Rica. 2011.
* OKAZAKI, T., ARCE, G., RYU, H., and ENGELHARDT, M.D., “Recent Research on Link Performance in Steel Eccentrically Braced Frames,” Proceedings, 13th World Conference on Earthquake Engineering – August 1-6, 2004, Vancouver, BC, Canada.
* OKAZAKI, T., ARCE, G., RYU, H., and ENGELHARDT, M.D., “Experimental Study of Local Buckling, Over strength and Fracture of Links in EBFs,” Journal of Structural Engineering, ASCE (In Review).
* ARCE, G., OKAZAKI, T. and ENGELHARDT, M.D., “Experimental Behavior of Shear and Flexural Yielding Links of ASTM A992 Steel.” Proceedings: STESSA 2003 – Behavior of Steel Structures in Seismic Areas – June 9-12, 2003, Naples, Italy.
* ARCE, G., “Impact of Higher Strength Steels on Local Buckling and Over strength in EBF’s”, Master´s Thesis, Department of Civil Engineering, University of Texas at Austin, 2002, Austin, TX