

Alexei Santos

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SUMMARY

Licensed **Professional Engineer** with 18 years delivering **high voltage substation** and **power systems EPC** programs across the United States and Canada. Leads civil and structural engineers, consultants, and design subcontractors through proposals, engineering, procurement support, construction interfaces, and closeout. Directs AIS, GIS, FACTS, and HVDC work involving transformer foundations, equipment supports, control buildings, steel structures, lightning masts, duct banks, manholes, trenches, drainage, and multidisciplinary building interfaces. Combines resource planning, recruiting, coaching, succession planning, budget ownership, schedule governance, **design gate reviews**, quality management, and technical change control with hands on design review. Experienced with Revit, BIM, PE sealed deliverables, utility standards, Lean, Kaizen, EHS, supplier evaluation, nonconformance resolution, and North American EPC delivery.

EXPERIENCE

Civil and Structural Engineering Manager

January 2021 to Present

Redstone Power Engineering

Denver, CO

Leads high voltage substation civil and structural engineering for EPC programs, directing teams, consultants, budgets, schedules, quality reviews, and customer deliverables.

- Led AIS and GIS design reviews for transformer foundations, **steel supports**, and control buildings.
- Balanced engineering resources against workload plans, budgets, schedules, and formal **design gate reviews**.
- Recruited engineers and coached teams through **performance reviews**, development plans, and **succession planning**.
- Reviewed Revit models, BIM coordination, **architectural drawings**, and multidisciplinary equipment interfaces.
- Resolved nonconformances through quality reviews, corrective actions, lessons learned, and updated design guides.
- Supported proposals with labor hours, execution plans, assumptions, exceptions, and deliverable reviews.
- Evaluated subcontractors and suppliers through **technical specifications**, bids, workload checks, and performance reviews.

Lead Civil Engineer

May 2016 to December 2020

Northline Energy Design

Minneapolis, MN

Directed civil engineering delivery for North American substation EPC projects, coordinating technical design, procurement support, consultants, construction interfaces, and client decisions.

- Directed foundation packages for reactors, **circuit breakers**, **disconnect switches**, CTs, PTs, and surge arresters.
- Coordinated duct banks, manholes, trenches, **drainage systems**, and equipment enclosure layouts.
- Managed consultant deliverables through technical reviews, design gates, schedule updates, and issue resolution.
- Prepared **subcontracting bid packages** with technical scope, standards, assumptions, and evaluation criteria.
- Applied utility standards and **North American codes** during design reviews, field questions, and change control.
- Introduced Kaizen **check sheets** that improved review consistency across recurring substation design packages.
- Supported procurement teams with supplier evaluations, technical clarifications, workload assessments, and performance feedback.

Senior Civil and Structural Engineer

July 2012 to April 2016

Prairie State Transmission Engineering

Kansas City, MO

Provided senior civil and structural engineering for high voltage transmission facilities, owning detailed design, PE review, construction support, and multidisciplinary coordination.

- Designed transformer foundations, **dead end structures**, **lightning masts**, trenches, and drainage for EPC projects.
- Reviewed structural calculations and PE sealed drawings for constructability, code alignment, and client acceptance.
- Coordinated civil interfaces with electrical, mechanical, architectural, and construction stakeholders during design development.
- Investigated field **nonconformances** and issued practical corrective details for safe construction progress.
- Prepared technical content for RFP responses, scopes of work, labor hours, and execution plans.
- Captured **lessons learned** in templates, **work instructions**, standards, and training materials for design teams.
- Supported HVDC and **FACTS** projects through equipment layout reviews, foundation coordination, and schedule recovery.

Civil Engineer

June 2008 to June 2012

Great Plains Substation Consultants

Omaha, NE

Delivered civil engineering packages for utility substations, supporting foundations, grading, drainage, structures, procurement documents, construction questions, and quality records.

- Developed grading, drainage, trench, duct bank, and manhole designs for utility substation sites.

- Prepared foundation drawings for **transformers**, circuit breakers, **reactors**, and outdoor electrical equipment.
- Coordinated civil plans with electrical layouts, control buildings, **steel supports**, and construction sequencing.
- Reviewed supplier drawings and responded to technical questions during **procurement** and field installation.
- Maintained design records, check sheets, calculations, and quality documentation for client review.
- Supported site changes with field measurements, design revisions, and clear construction communication.
- Applied **United States** and Canada utility standards across multidisciplinary substation design **deliverables**.

Junior Structural Engineer

June 2005 to May 2008

Midwest Infrastructure Design Group

Des Moines, IA

Supported structural design teams on power infrastructure work, preparing calculations, drawings, quantity information, reviews, and construction responses under senior guidance.

- Prepared steel support calculations and drawings for substation equipment and **dead end structures**.
- Assisted foundation detailing for transformers, **circuit breakers**, **disconnect switches**, and control enclosures.
- Updated civil and structural drawings after multidisciplinary reviews, field comments, and client markups.
- Checked reinforcement details, anchor layouts, elevations, dimensions, and material schedules for design accuracy.
- Compiled quantities and technical notes supporting proposals, procurement packages, and construction planning.
- Participated in quality checks that improved drawing consistency and reduced repeated review comments.
- Documented field questions and coordinated responses with senior engineers, designers, and construction teams.

PROJECTS

HVDC Converter Station Civil Design 📅 2024

Directed civil coordination for converter station foundations, equipment enclosures, drainage, trenches, and structural supports, aligning BIM reviews with EPC schedule gates and construction needs.

GIS Substation Expansion Program 📅 2022

Managed multidisciplinary design for GIS equipment, control rooms, duct banks, manholes, and access systems, using Revit reviews and utility standards to support procurement.

Lean Design Review System 📅 2023

Created Kaizen check sheets, work instructions, and lessons learned for recurring substation packages, giving teams clearer reviews and more consistent quality records.

LEADERSHIP & AWARDS

- Senior Mentor, Utility Civil Engineering Mentorship Program, recognized for developing early career engineering talent.
- Technical Contributor, Substation Design Standards Working Group, recognized for practical civil and structural guidance.

EDUCATION

Master of Science in Civil Engineering

2012

University of Colorado Denver GPA: 4.0

Denver, CO

Coursework: Structural analysis, foundation design, construction management, geotechnical engineering

Bachelor of Science in Civil Engineering

2005

Iowa State University GPA: 4.0

Ames, IA

Coursework: Structural design, reinforced concrete, steel design, soil mechanics

CERTIFICATIONS

- Professional Engineer, Civil Engineering, Colorado 📅 2010
- Lean and Kaizen Continuous Improvement Training 📅 2023

TECHNICAL SKILLS

- **Substation Systems:** AIS, GIS, FACTS, HVDC
- **Civil Design:** Foundations, grading, drainage
- **Structural Design:** Steel supports, dead end structures, lightning masts
- **Electrical Equipment:** Transformers, reactors, CTs, PTs
- **Site Infrastructure:** Duct banks, manholes, trenches
- **Building Design:** Control rooms, equipment enclosures, MEP coordination

- **BIM Applications:** Revit, BIM coordination, 3D design
- **Quality Systems:** Quality Management System, audits, nonconformances
- **Project Controls:** Resource loading, design budgets, schedules
- **Procurement Support:** Bid packages, supplier evaluation, sourcing
- **Improvement Methods:** Lean, Kaizen, lessons learned
- **Codes and Standards:** Utility standards, North American codes, construction standards

SKILLS

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|--------------------------------|-------------------------|----------------------|-----------------------|
| • High voltage substations | • GIS | • Resource planning | • PE sealing |
| • Civil structural engineering | • FACTS | • Revit | • Supplier evaluation |
| • EPC delivery | • HVDC | • BIM | • Project management |
| • AIS | • Equipment foundations | • Quality management | |

PROFESSIONAL AFFILIATIONS

- Utility Civil Engineering Mentorship Program, Senior Mentor
- Substation Design Standards Working Group, Technical Contributor

LANGUAGES

- English (Native)
- Spanish (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST