Juan Waters

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SUMMARY

Lead thermal systems engineer with 10 years designing mechanical cooling infrastructure for data centers and mission critical facilities. Guides facility side architecture across chillers, dry coolers, **thermal storage**, pumps, **cooling towers**, **heat rejection equipment**, and **air handling systems**. Connects thermal fluid analysis with equipment requirements, controls coordination, backup power interfaces, commissioning, and long range roadmaps for high density and AI infrastructure. Sets practical PUE and WUE targets, evaluates future chip requirements including DSX2 platforms, and presents trade offs clearly during customer and design reviews. Experience includes ASHRAE guidance, OCP concepts, PLC interfaces, Word, Excel, and PowerPoint. Mentors engineers and coordinates mechanical, controls, electrical, sustainability, and technology partner inputs, helping teams deliver reliable cooling systems for demanding facilities.

EXPERIENCE

Lead Thermal Systems Engineer

January 2023 - Present

Blue Ridge Data Infrastructure

Charlotte, NC

Owns AI **data center cooling** architecture, equipment requirements, controls coordination, sustainability targets, and technical roadmaps while mentoring engineers and guiding customer reviews.

- Led AI cooling architecture with thermal models, clarifying equipment selections during design reviews.
- Created cooling roadmaps for future chip requirements, giving technology partners clear planning assumptions.
- Set **PUE** and **WUE** targets through plant analysis, guiding sustainable facility decisions.
- Coordinated PLC interfaces and controls sequences, reducing ambiguity during commissioning preparation.
- Presented **mechanical loop** trade offs to customers, gaining alignment across engineering and sales teams.

Senior Mechanical Engineer, Data Centers

March 2020 - December 2022

Catawba Mission Critical Design

Charlotte, NC

Directed **mission critical mechanical cooling design** for data centers, coordinating plant equipment, air systems, power interfaces, commissioning activities, and client decisions.

- Designed chiller plant configurations with load studies, supporting resilient data center capacity planning.
- Integrated **pumps** and **cooling towers** through hydronic analysis, improving equipment coordination across design packages.
- Reviewed **air handling systems** with engineers, resolving airflow concerns before construction documentation.
- Connected cooling equipment with **backup power** requirements, clarifying recovery expectations for mission critical operations.
- Led customer design reviews with concise technical presentations, moving open decisions toward approval.

Mechanical Engineer

July 2017 - February 2020

Piedmont Building Systems

Greensboro, NC

Supported high tech facility HVAC and cooling water programs, leading system analysis, controls coordination, commissioning preparation, and customer design communication.

- Modeled high tech HVAC loads with thermal calculations, supporting accurate equipment sizing decisions.
- Evaluated cooling water arrangements with equipment data, improving constructability during design coordination.
- Prepared controls points and sequences for review, helping commissioning teams identify gaps early.
- Supported functional testing with field observations, closing issues before operational handoff.
- Explained design trade offs during customer reviews, building confidence in recommended system changes.

Mechanical Design Engineer

June 2016 - June 2017

Carolina Energy Engineering

Winston-Salem, NC

Developed HVAC and central plant designs through load calculations, equipment selection, hydronic analysis, functional testing, and supervised client coordination.

- Calculated HVAC loads with engineering software, supporting central plant equipment selection.
- Sized hydronic systems through pressure analysis, improving pump and piping design decisions.
- Compared central plant equipment using performance data, helping teams select practical solutions.
- Supported functional testing with documented observations, giving project leaders clear corrective actions.
- Prepared technical materials for reviews, making mechanical recommendations easier for clients to evaluate.

PROJECTS

AI Facility Cooling Roadmap **2025**

Mapped multi generational mechanical loop requirements for high density computing, linking thermal storage, heat rejection, controls, and future DSX2 platform needs.

Mission Critical Plant Resilience Study 2022

Evaluated chiller, pump, cooling tower, air handling, and backup power interfaces for reliable data center operation.

LEADERSHIP & AWARDS

- Recognized by engineering leadership for guiding AI cooling architecture and customer design decisions.
- Selected to mentor engineers on mechanical loop analysis, controls coordination, and mission critical design reviews.
- Presented practical cooling trade offs across mechanical, controls, electrical, and sustainability teams.

EDUCATION

Bachelor of Science in Mechanical Engineering 2016

North Carolina State University GPA: 0 *Raleigh, NC*

Coursework: *Thermal fluids, Heat transfer, HVAC systems, Controls engineering*

CERTIFICATIONS

- Professional Engineer, Mechanical, North Carolina 2021
- ASHRAE Data Center Cooling Coursework 2024

TECHNICAL SKILLS

- **Cooling Equipment:** Chillers, Dry coolers, Cooling towers
- **Hydronic Systems:** Pumps, Hydronic calculations, Cooling water
- **Air Systems:** Air handling units, HVAC, Airflow analysis
- **Thermal Storage:** Thermal storage tanks, Heat rejection, Load shifting
- **Controls:** PLC interfaces, Controls sequences, Control points
- **Sustainability:** PUE, WUE, Energy analysis
- **Standards:** ASHRAE, OCP, Mission critical design
- **Engineering Software:** Thermal modeling, Load calculations, Equipment selection
- **Office Applications:** Microsoft Word, Microsoft Excel, Microsoft PowerPoint
- **Resilience:** Backup power, Commissioning, Functional testing

SKILLS

- Data center cooling
- Mechanical loop architecture
- Chillers
- Dry coolers
- Thermal storage
- Pumps
- Cooling towers
- Air handling
- PUE targets
- WUE targets
- PLC controls
- Mission critical design
- Backup power
- ASHRAE guidance
- OCP concepts

PROFESSIONAL AFFILIATIONS

- ASHRAE participant focused on data center cooling guidance and professional knowledge sharing.
- Open Compute Project participant contributing practical perspectives on efficient data center thermal systems.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST