

Aaron Horta

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Summary

Mechanical Engineer with experience in **mechanical design, commissioning, and consulting services** covering a diverse portfolio of buildings. A passionate engineer willing to take on design challenges for a better built environment.

Education

Illinois Institute of technology (IIT)

B.S. in Mechanical Engineering, Minor in Building Systems Engineering

August 2018 - May 2022

Major Coursework: Thermodynamics, Fluid Mechanics, Heat & Mass Transfer, Computational Mechanics

Minor Coursework: Building Science, HVAC Design, Applied Energy Modeling, Lighting Systems, Net Zero Design

Prairie State Community College (PSC)

A.S. Engineering

May 2016 - May 2018

Major Coursework: Calculus 1 & 2, Chemistry 1 & 2, Probability & Statistics, Biology Cellular & Molecular, Economics

Prairie State Community College (PSC) | ADULT EDUCATION DEPARTMENT

High School Equivalency / GED

April 2016

Successfully completed all sections of the GED exam

Employment History

Mechanical Designer

July 2024 – Present

Allen + Shariff Corp.

Chicago, IL

- Completed a 22-page report for a fitness facility's existing conditions including mechanical equipment, ventilation, code violations, proper dehumidification of a natatorium, and building envelope components. The report also included immediate recommendations to the facility and proposed equipment for future expansion & renovation work.
- Completed a 47 page report for a historic Christian Orthodox church along with a rectory building. Report included in depth existing conditions including mechanical equipment, ventilation, and code violations. In addition, one of the major immediate recommendations was replacing end of life R-410a indoor split system prior to the refrigerant change to avoid replacing the outdoor split system to ensure both split systems utilize the same refrigerant.
- Design in progress for a renovation and expansion of an authentic Greek restaurant, in a adapt reuse building, including new rooftop units, kitchen makeup unit, kitchen hood exhaust, and new ductwork distribution.
- Design in progress for several new construction midrise affordable senior housing including dwelling units, cafeteria, kitchen, and other common amenities for seniors' citizens.
- Design in progress for a new construction of nine condominium unit buildings for senior citizens including enclosed parking garage with EV charging stations. Design will incorporate an all-electric building with individual splits for condo units.
- Utilize Carrier load calculation software, HAP, to run load calculations based on the ASHRAE Heat Balance Method for multifamily, senior assisted living, event venues, tenant interiors, and other different building types.
- Complete full construction document drawings in Revit and AutoCAD to company standards. Conduct quality control reviews on drawings across disciplines (electrical, plumbing, and fire protection) to deliver top products to clients.
- Coordinate with technical sales engineers, electrical engineers, plumbing and fire protection engineers, architects, and clients to ensure project needs are met and client is delivered the best design experience.

Mechanical Designer

June 2022 – June 2024

Callan Consulting Engineers, Inc.

Chicago, IL

- Undertook a 300,000 square-foot warehouse conversion into a showroom, office, storage, and production space. Ran load calculations using CHVAC and selected eight Trane rooftop units, 12 plenum unit heaters, several VAVs, and FPBs to comply with IMC 2016. Delivered full construction documents in AutoCAD in a timely manner.
- Completed a 15,000-square-foot tenant buildout design in class A office building with a unique structural and mechanical systems, and strict noise criteria. Sized Nailor dual-duct FPBs that require a connection from the interior and a perimeter AHUs. Sized ductwork at the lowest velocity possible to limit noise generated from ducts and to navigate through the limited structural openings.
- Conducted a full building load calculation using IESVE to replace two end-of-life 320-ton York air-cooled chillers for a 200,000-square-foot class A office building. Compiled a comparison breakdown on four different chiller manufacturer selections on chiller part load efficiency, ComEd rebates, and payback for client's review.
- Designed a 3,000-square-foot retail space buildout in Chicago requiring a Lennox eight-ton twinned furnace unit and condenser units including outside air and economizer capacities. Utilized a common supply and return ductwork for the twinned system. Delivered full construction documents in AutoCAD in timely manner.

- Commissioned a midrise multifamily, senior living, and affordable housing buildings in Chicago. The mechanical systems that were commissioned were air-cooled chillers, gas-fired boilers, dual-temperature pumps, MAUs, VAVs, exhaust fans, unit heaters, and apartment FCUs. Delivered weekly progress reports to client.
- Assisted in a legal litigation case against an engineering firm that failed to appropriately design a mechanical system for the pool room following all standards, code, and guidelines available. Investigated the natatorium design of the hotel experiencing mold and chloride odors outside the pool room, and pressurization issues. The engineering firm failed to uphold the proper design guidelines and procedures for a natatorium per ASHRAE HVAC Applications and International Mechanical Code and Illinois Department of Public Health. Documented the findings in report format to allow the lead mechanical engineer to present them to the attorney in charge of the case.
- Investigated a manufacturing and assembly warehouse experiencing condensation issues on the underside of the roof deck during winter. Utilized the ASHRAE Handbook of Fundamentals to determine the minimum roof insulation required to avoid condensation for this location. Completed a site visit using an infrared camera and observed “cold spots” throughout the roof, supporting the idea that the roof’s integrity may be compromised. Wrote a short five page report outlining the existing conditions, roof insulation analysis, and recommend measures to assist client on making improvements to their roof assembly.
- Wrote a six page report for a full office floor that was experiencing extremely loud noise levels generated from ductwork. Completed an in depth analysis of the HVAC distribution, airflow through ducts, and terminal unit sizing. Determined the engineering firm failed to appropriately allocate airflow through ductwork and limit the velocity of air.
- Commissioned 20 dual duct fan powered boxes with complex sequence of operations on the following modes: re-heat, re-cool, cooling, and heating modes. Found dispensaries on the control of these fan powered boxes and provided weekly reports to the client and general contractor on issues to address.

Measure & Verification Co-op

Willdan

May 2021 – May 2022
Des Moines, IA | Chicago, IL

- Performed construction document reviews for projects throughout the U.S. to verify energy-saving strategies at schematic design and construction documentation levels including reviewing book specifications on architectural, mechanical, electrical, plumbing, and fire protection systems.
- Delivered takeoffs for characteristics of building envelope and controls for energy compliance. This included reviewing the wall and roof assembly entirely to determine its resistance values per International Energy Compliance Code of the respective climate zone.
- Determined the lighting power density (Watts / square foot) by space method for midrise apartment buildings including reviewing lighting fixture submittals to verify meeting or exceeding energy code compliance.
- Completed report of results and submitted to energy analyst and project managers for internal review coordination.

Facilities Coordinator Intern

Holsten Management Corporation

June 2020 – April 2021
Chicago, IL

- Coordinated with building engineers and property managers across portfolios for their building needs.
- Analyzed water and gas consumption for 36 buildings on high usage and worked with building engineers to keep excess energy usage down.
- Saved the company 60% per each battery replacements on powered dumpster caddy and decreased lead time on by buying directing from local AutoZone stores in lieu of whole sale suppliers.
- Collaborated with Facilities Administrators on fire damage assessments and restoration.

Exam Proctor | Volunteer Tutor

PSC | Adult Education Department

Spring 2017 – May 2023

- Facilitated GED pre-assessment testing during program registration for 20+ students of all walks of life.
- Facilitated English as a Second Language (ESL) registration classes for students including Spanish speaking.
- Successfully tutored five students (one on one) in math subjects on the GED exam they were struggling in for two weeks and all five students passed the math portion of the exam after one on one tutoring.

Skills & Certifications

Technical: MATLAB, Python, IESVE, OpenStudio, HAP, BEopt, Revit, Creo, Inventor, AutoCAD, MS Office

Certifications: Lean Six Sigma White Belt, Solar Decathlon Building Science Education Series