

John Prescher is a Senior Consultant for ESi. He is an accomplished Mechanical Engineer with more than 25 years of experience in the following areas: Project scoping, study, design, bidding, construction administration, and project management on a wide array of projects, including, chilled water / steam generation, utility piping, plumbing systems, air compressors, cooling towers, HVAC, exhaust, and commissioning both domestically and internationally. Experience also includes system troubleshooting, evaluating system performance, and identifying repair/replacement plans.

Education

MS, Mechanical Engineering. South Dakota State University.
1999

BS, Mechanical Engineering. South Dakota State University.
1998

Licenses & Certifications

- State of Alabama P.E. License 31511
- State of Kentucky P.E. License 26931
- State of Minnesota P.E. License 43477
- State of Missouri P.E. License 2007000020
- State of Texas P.E. License 106963
- LEED-AP O&M Accreditation 95805 GBCI

Positions Held

Engineering Systems Inc., Plymouth, Minnesota

- Senior Consultant, 2026 – Present

3M Facilities Engineering, Maplewood, Minnesota

- Advanced Specialist Facilities Mechanical Engineer, 2018 – 2026

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ESi Minneapolis

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Areas of Specialization

- Air Handling Units (AHUs)
- Chilled Water Systems
- Compressed Air Systems
- Cooling Towers
- Design Studies
- Domestic Hot and Cold Water Systems
- Dust Collectors
- Exhaust Systems
- Heating Hot Water Systems
- Building Automation Systems
- HVAC Systems
- Plumbing Systems
- Pumps
- Rooftop Air Handling Units (RTUs)
- Steam Systems
- Utility Piping Systems
- Commissioning
- Condition Assessments

Stanley Consultants, St. Louis Park, Minnesota

- Project Manager/Mechanical Department Manager, 2008 – 2018
- Mechanical Engineer/Senior Mechanical Engineer, 2000 – 2008

Professional Affiliations/Honors

ASHRAE

- Member

Consulting Specifying Engineer's 2011 40 Under 40 Recipient

3M Circle of Technical Excellence and Innovation 2021 – Project Sandstone, 2022 – Project Scoria
Minneapolis Regional Future City Essay Reviewer, and Technical and Special Awards Judge

Project Experience

Mechanical Systems Design

- Industrial plant, TN Process Bay Expansion (85,000 sf renovation) – included four air handling units (AHUs) totaling 170,000 cfm, two of which were 100% outdoor air units, process exhaust fans, extension of central plant utility piping to the new process, and process piping/ductwork to a new thermal oxidizer. Also added a 2nd 1,000 ton VFD-driven chiller to the chiller plant in a series-parallel configuration.
- Industrial plant, MO Process Renovation (6,600 sf renovation) – renovation of an existing warehouse bay into a resin/media room, gowning room, capsule assembly area, and packout area. Project phases included detailed design (DD), construction document development (CDs), and construction administration (CA). Project provided process piping to process equipment, added a 14,000 cfm rooftop air handling unit (RTU), ductwork, and a rooftop-mounted 9,000 cfm desiccant dehumidifier with a 37 degree wet bulb leaving air temperature.
- Industrial plants, IL and MN AFFF Replacement Containment Projects – coordinated the design between multiple external engineers for containment of fire foam sprinkler discharge. Project scope was for 10 buildings at one site and 11 buildings at another site and included development of underground plumbing schematic design packages for internal cost estimating.
- Industrial plant, MN Dust Collector Installation – provided a cost estimating package that added a new indoor 7,000 cfm dust collector to collect explosive dust from 13 sources (2 bag break stations and 11 exhaust arms). Dust collector included chemical suppression and a bag break detector with a HEPA post-filter for re-entrainment of clean air back into the space. Access platforms with stairs were provided for the two levels of filter removals at the dust collector. Project also provided a new 3,000 cfm exhaust fan for solvent vapor fumes at unloading and compounding stations.

- Industrial plant, MN Snowmelt System – developed construction documents that extended an existing snowmelt system that was 8' wide x 20' long to a 5' wide sidewalk 360' linear feet long. Divided the new system into two manifold stations that had six zones apiece. Provided a new plate and frame heat exchanger to transfer heat from 10 psi steam to a 50% propylene glycol mixture heat transfer fluid for heating under the sidewalk. Provided new glycol pumps and sidewalk sensors embedded in the concrete sidewalk for activation of the system through the building automation system (BAS).
- Industrial plant, IN AHU Replacements – replaced two aged DX-cooled, electric heating AHUs located on a mezzanine with similarly-sized new Trane AHUs and roof-mounted condensing units. Units were 16,000 cfm each with nominally 40 tons cooling capacity and 120 kW duct-mounted heating elements and unit-mounted controls. Utilized a rental AHU during construction that allowed for construction to be staggered allowing one AHU to be down at a time.
- Industrial plants, MO and ON Stormwater Management – added lift pumps to move stormwater from wet well sumps to multiple filters housed in two containers provided by a water treatment provider. Extended city water to each container to be used for wash down or filter changeouts. After filtering, the clean water was then released to city storm sewer systems.
- Industrial plant, MO Thermal Oxidizer Options – developed schematic drawings to generate construction cost estimates for integration of two new 130,000 cfm thermal oxidizers. Included 96" diameter duct tie-in to existing solvent laden air header, 4" UG gas tie in, and gathering quotes for isolation dampers. Coordinated with structural engineer for over-the-road duct support and thermal oxidizer pad at-grade.
- Industrial plant, MO – Compounding Room – developed three conceptual designs and cost estimates for moving an existing compounding function (weighing out recipes for 'kits' of raw materials) that are used plant-wide. Design of the new C1/D1 space included two central weigh stations with dust collector hoods to dispense explosive-dusts, a small-weigh station set-up, raw material de-lumping station, and a space for flammable liquids weighing. Potential locations included: remodel of the existing space, renovation of an existing loading dock area, and a new building. The new building option was roughly 100' x 70' and included a second story for AHU equipment.
- Industrial plant, TN Office/Breakroom Renovation – reclaimed 27,000 sf of office/warehouse space into office/breakroom/restroom space. Project included two new AHUs (40,000 cfm total with chilled water cooling, hot water preheat/reheat, and steam humidifiers) on a new mechanical mezzanine with 33 electric reheat VAV boxes. Project phases included: conceptual design, construction document development, bidding, construction, and acceptance phases.
- Industrial plant, TN Propane Back-up System – relocated the plant's existing 30,000 gallon propane storage tank, installed new propane pumps and a vaporizer skid, and connected into the plant's existing UG natural gas supply pipe.
- Industrial plant, IL Water Treatment Building – project consisted of a new 390' x 160' filtration building for process water and stormwater. Building mechanically included UG plumbing, unit heaters, split systems for electrical room cooling, cold/hot water for restrooms, a tempered water loop, two 60 hp air compressors, two AHUs (natural gas heating with DX-cooling) totaling 23,500 cfm, a heat recovery run-

around loop, multiple process exhausts, general exhaust, destratification fans, and HVAC controls. Project also included multiple pump house buildings to tie-in water streams to the main building and a separate C1/D1 filter media regeneration building that was 300' x 50' and utilized an 18,000 cfm MAU with a heat recovery run-around loop.

- Industrial plant, IL Process Cooling Tower Addition – connected two buildings to a new cooling tower installation for well water reuse. Cooling tower installation featured a 3-celled cooling tower over a concrete sump, 3,000 gpm of 110F to 75F cooling, four 200 hp vertical turbine pumps, and underground HDPE piping for distribution.
- US Army Corps of Engineers, Camp Victory, Baghdad, Iraq – reconstruction of a heating water plant at Saddam Hussien's former palace near Baghdad International Airport. Included onsite field work and construction document development. Project also included performing a condition assessment of 40+ AHUs and documenting needed repairs.
- Industrial plant, MN Chiller Replacement – replaced a 3,500 ton Worthington chiller with two Trane VFD-driven machines in its place totaling 3,500 tons in a series-counterflow configuration. Developed procurement documents for the owner to pre-purchase the chillers.
- Mayo Clinic Rochester, MN Chiller #4 Replacement – provided a study that examined replacement costs and lifecycle costs for five different chiller replacement options for the Franklin Heating Station's 2,000 ton electric centrifugal chiller that had experienced vibrational issues over its whole life. The plant settled on a 3,000 ton replacement and CDs and CA services were performed. Developed procurement documents for the owner to pre-purchase the chiller.
- South Dakota State University, SE Campus Residence Hall Expansion, Brookings, SD – created a parallel 6" high pressure steam header and extended it and a 6" low pressure condensate pipeline in both shallow and walkable steam tunnels. Steam tunnels included new pipe racking and sump pumps for collecting ground water. Project also created a direct-buried CHW loop to four new residence halls.
- State of South Dakota Capitol Complex, Pierre, SD – Capitol Complex Central Boiler Plant Replacement – gathered field data and compiled information for a lifecycle study of three different heating plant replacement options. The lowest initial cost option and lowest lifecycle cost option was to replace the two large heating plant boilers with five modular boilers. Developed construction documents showing the demolition of the existing boilers, gas piping, feedwater piping, steam piping, No. 6 fuel oil piping, and fuel heating equipment. New work included the boiler installation, steam piping, gas piping, No. 2 fuel oil piping, and feed water piping. Also provided bidding services and coordinated with the owner, structural, electrical, and architectural disciplines.
- Lakeland Electric, McIntosh Administration Building Civil Site Work, Lakeland, FL – prepared a building siting study for the owner weighing the pros, cons, and construction costs of five different locations on their property for placing a new administration building. Coordination was required with the owner, a subconsultant local architect, and an in-house civil engineer.

- Bemidji State University, Bemidji, MN – Heating Plant Boiler Replacement – developed demolition drawings showing the removal of piping, stack, and two existing boilers. Developed procurement documents for a new 45,000 lb/hr boiler and reviewed bids. Generated construction documents for the boiler installation, which included new underground sanitary sewer, steam, condensate, blowdown, boiler feedwater, gas and fuel oil piping, plus boiler breeching. Coordination was required with architectural, structural, controls, and electrical disciplines.
- Minnesota State University – Moorhead, Moorhead, MN – Boiler Decentralization Study – prepared a study weighing decentralization of the existing campus heating plant against upgrading the existing plant via a lifecycle cost analysis. Project involved discussions with campus staff and utility providers, performing a cost estimate for decentralization, performing a cost estimate to repair the existing heating plant, and performing a lifecycle cost analysis for each option.
- Winona State University, Winona, MN – Data Center HVAC System Upgrade – developed construction documents for the installation of a data center computer room HVAC unit (CRAC unit), ductwork rerouting, and tie-in to the existing chilled water system.
- District Energy Provider, Abu Dhabi, UAE International Airport – Chilled Water Study – collected data from various airport-owned satellite chiller facilities on the airport campus and made recommendations for connection to a central district chilled water facility operated by a third-party. The connection of seven satellite chilled water plants yielded a 15,000-ton central district plant with thermal storage capabilities. Services included: site-survey, building load calculations, district system schematic design for both the central plant layout and the distribution layout, construction cost estimation, and financial planning including a lifecycle cost analysis.
- Industrial plant, TN – QA/QC Lab AHU Replacement – removed a VAV box off a 100% outdoor air unit that served a temperature and humidity critical lab space and replaced it with a DX-cooled fan coil unit capable of utilizing 100% outdoor air. Developed construction documents. Verified control sequences upon installation of the new equipment and performed remote monitoring of the temperature and humidity data seasonally – especially during shoulder-season cross-overs.
- Industrial plant, MN – Electrical Substation Room HVAC Upgrades – designed construction documents for a 5,000 cfm ceiling-hung chilled-water-cooled fan coil unit ducted into an electrical substation room for summer-time cooling. Provided control sequences for the fan coil unit to be controlled in this new summer operational mode and for the existing exhaust system to be used in a winter operational mode to provide free waste heat to a warehouse bay.

Commissioning

- State of MN, Dept of Military Affairs, Faribault, MN Commissioning Services for New Armed Forces Reserve Center – attended the project design charrette, provided written review comments during construction, developed prefunctional checklists and functional tests for the commissioned equipment, provided commissioning specifications, wrote the commissioning plan, wrote the systems manual, attended construction meetings, verified completion of the prefunctional checklists, assisted with functional checkout, assisted with operator training, performed seasonal commissioning, and a warranty walkthrough.

- South Dakota State University, Brookings, SD – Commissioning Services for Dairy Manufacturing Plant Addition – developed prefunctional checklists and functional tests for the commissioned equipment, attended construction meetings, verified completion of the prefunctional checklists, assisted with functional checkout, assisted with operator training, performed seasonal commissioning, and attended a warranty walkthrough.
- Rochester Community and Technical College, Rochester, MN Commissioning Services for the Workforce Center Addition – commissioned equipment for the 25,000 sf addition included: a 75-ton scroll chiller with remote condenser, chilled and hot water pumps, HVAC controls, VAV boxes, a steam-to-HW HEX, and finned tube radiant heaters.

Condition Assessments

- Gerald W. Heaney Federal Building, Duluth, MN – Mechanical/Electrical Deficiency Report – performed a site condition assessment of building HVAC and plumbing systems, developed a condition assessment report, and construction cost estimates for recommended upgrades.
- Winona State University – Winona, MN – Maria Hall Condition Assessment – performed an assessment of an existing dormitory building owned by another local college for Winona State University. The assessment evaluated the condition of the existing equipment and the building itself and recommended immediate repairs required, repairs recommended to be completed within one year, and repairs recommended to be completed within five years. Also performed cost estimates and managed subconsultant architect.
- City of Rapid City, Rapid City, SD – Energy Plant Study – assessed the condition of existing boilers, chillers, cooling towers, pumps, and piping systems. Project evaluated different energy plant replacement options including: replacing the absorption chillers with electric centrifugal chillers, replacing pumps, replacing cooling towers, conversion of existing 3-way valve users to 2-way valve users, and replacing boilers either directly or with wood-fired boilers. Prepared report that summarized the existing equipment conditions and provided construction cost estimates for four different replacement options and lifecycle costs for each option.
- Industrial Plant, WI – Plumbing System Study – reviewed five areas within the plant after a camera crew video-scoped the sanitary sewer system. Developed a pricing package to install additional cleanouts, line a section of sewer pipe with cured-in-place epoxy-saturated pipe, and dig-out/reinstall a section of sagging sewer pipe level.
- Cavalier Air Force Station, Cavalier, ND – Cooling Water Piping Inspection – coordinated with an ultrasonic thickness testing team for inspecting over 25 different cooling water piping sections that were deteriorating. Developed a report detailing the study findings and recommended replacements with construction cost estimates.

- US Army Corps of Engineers – Army Reserve Building Infrastructure Inventories – responsible for mechanical assessments at Army Reserve building sites in North Dakota and Minnesota. Assessments included tagging equipment, documenting nameplate data, and documenting equipment condition for the following types of equipment: boilers, hot water heaters, pumps, chillers, air handling units, fans, controls systems, backflow preventors, roof drains, and plumbing fixtures.