

Sewer Heat Recovery Connection

Standard Design Guidelines

Contact:

Drew Thompson

Resource Recovery Project Manager, King County Wastewater Treatment Division

Email: drthompson@kingcounty.gov

Office: (206) 263-0845

Cell: (206) 637-4368

What Is Sewer Heat Recovery?

A Sewer Heat Recovery system uses thermal energy in underground wastewater conveyance pipes to heat or cool nearby buildings. Sewer Heat Recovery can be an affordable, renewable energy alternative to a traditional method used to heat or cool your building.

King County welcomes proposals for Sewer Heat Recovery Projects. Please note: our utility's primary mission is conveying and treating wastewater; as such, all projects will be evaluated to ensure that wastewater treatment functions are not compromised. The User bears the cost and risk for Sewer Heat Recovery projects. In order to use King County Wastewater Treatment Division's (WTD) sewer conveyance lines and to establish a connection, we ask first for:

1. Signed contract between King County Wastewater Treatment Division and the 'applicant'.
2. 100% engineering design that satisfies and follows the standard design guidelines outlined below. Project scope, schedule, cost, and team member information.

Design Standards

A. Feasibility (Memo Application)

- a. As a part of your feasibility study please provide the following:
 - i. System heating and cooling demand analysis in ton hours
 - ii. 30-year demand predictions (in ton hours) projected out in 5-year increments
 - iii. A physical map of the intended customer base both now and projected every five (5) years throughout the contract
 - iv. Low, average, and high flow withdrawal rates in gallons per minute
 - v. Is the construction new or a retrofit
 - vi. Square footage of construction that is residential, commercial, industrial
- b. List the Assumptions and Criteria used for the feasibility study,
- c. Provide a risk register of the intended design and King County will determine if a risk is relevant to King County Wastewater Treatment Division. Following the identification process, the risks will be tracked and updated by the consultant team, and at each review step the County will determine their significance to the County's equipment and process.

B. System Design

- a. Provide your project manager's name and contact information
- b. Provide a Drawing Index that reflects the total number of drawings anticipated to complete the project. Ensure drawings include the following:
 - i. Title blocks and drawing layouts
 - ii. General symbols, legends, and abbreviations
 - iii. Profile views on the pipes and plan views
- c. For system design, provide detailed drawings noting:
 - i. How the intended system will interact with King County Wastewater Treatment Division's pipes
 - ii. Method for obtaining access
 - iii. All interactions both upstream and downstream of access points

- d. Detail how King County Wastewater Treatment Division’s pipes will be protected during design, construction, and operation
 - i. During the construction a diversion plan of the tap must be developed which must have acceptance from the Department of Ecology
- e. Drawing should include the following:
 - i. Pipe size
 - ii. Pipe material
 - iii. Meter location (for King County Wastewater Treatment Division access)
 - iv. Size of wet well
 - v. Naming convention should be consistent throughout
- f. List assumptions and criteria used for system design. Specify the intended Sewer Heat Recovery (SHR) system that will be used (i.e., SHARC, Huber, etc.)
- g. Provide basic controls and operating strategies
- h. Drawings should clearly indicate that fluid extracted from pipes and fluid from the User will remain separate
- i. Provide a design schedule including major milestones which to 30%, 60%, and 90% dates, King County Wastewater Treatment Division comments review, and the start of construction
- j. Show solids balance under low, average, and high flow conditions
 - i. How the system will deal with solids entering and exiting the system
- k. Estimate of the length of time the sewage will be pulled out of the system
- l. Easements
 - i. List all easements owned by King County that would be impacted by your project
- m. Right of Way (ROW)
 - i. Provide information on all ROW that impact access to King County’s equipment.
- n. If King County easements or an ROW are impacted, provide a site map.

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