



**Civil/Mechanical Engineering**  
Steam Distribution Engineering  
Consolidated Edison Company of New York, Inc.  
4 Irving Place, New York, N.Y. 10003

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## **SPECIFICATION S-11965-4**

### **GENERAL REQUIREMENTS FOR STEAM SERVICE**

**FOR CUSTOMERS UTILIZING CON EDISON STEAM SERVICE  
AND INTERCONNECTING COMBINED HEAT AND POWER FACILITIES  
TO THE CON EDISON STEAM DISTRIBUTION SYSTEM**

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**SECTION I.**

**DEFINITIONS**

- 1.0 **“Company”** means Consolidated Edison Company of New York, Inc., or any department(s) in Steam Distribution, or Steam Distribution Engineering (SDE).
- 2.0 **“Customer”** includes both a present consumer of and an applicant for the Company's steam service. It may also refer to a representative of the Owner; for example, a Consulting Engineer or a Registered Architect
- 3.0 **“Meter”** means the steam-metering device used by the Company to measure the service supplied to the Customer, including any equipment furnished by the Company as part of such metering device.
- 4.0 **“New Customer”** is an applicant for steam service at a new premises or new premises with an existing service line, or who was not the last previous Customer at the premises to be served, regardless of whether such Customer previously was or is still a Customer of the Company at a different location.
- 5.0 **“Point of entry” (POE)** refers to the point at which the steam service pipe intersects with the Customer’s property line.
- 6.0 **“Point of service termination”** means the point at which the Company terminates its service line and the Customer piping begins.
- 7.0 **“Rate Schedule”**, also sometimes referred to as the **“Tariff”**, means the Company's Schedule for Steam Service as filed with the New York Public Service Commission.
- 8.0 **“Rules”**, **“regulations”**, **“rules and regulations of the Public Service Commission”**, or any combination thereof, refer to the rules and regulations duly adopted by the Public Service Commission for publication in Title 16 of the State of New York Official Compilation of Codes, Rules and Regulations (NYCRR), and to any lawful orders of the Public Service Commission.
- 9.0 **“Service line”** means the pipes and equipment for delivering steam from the Company's distribution system to the piping system of the Customer's building or premises.
- 10.0 **“Service”** or **“steam service”** means the supply of steam provided by the Company.

**SECTION II.****GENERAL REQUIREMENTS FOR ALL SERVICE CLASSIFICATIONS****1.0 Applicability**

- 1.01. This procedure is for Customers requesting new steam service or a modification to an existing steam service. Customers must comply with the requirements written in this document if they are planning work that may include: steam load changes due to equipment upgrades/exchanges or building improvements; on-site distributed generation with heat recovery steam generators; on-site boiler to Company steam conversions; steam micro-turbine installation; steam service pipe relocation or duplication; significant changes or redesign to internal high-pressure steam headers, risers or piping network; steam meter station upgrade; and/or pressure reducing valve (PRV) station upgrade.

**2.0 Requests for New or Modified Steam Service**

- 2.01. All service requests and the furnishing of service are subject in all respects to the lawful orders of the Public Service Commission, and to the provisions of the Rate Schedule of the Company on file with the Commission and any subsequently effective revisions thereof. The Rate Schedule for steam service can be found on the Con Edison Website: [https://www.coned.com/\\_external/cerates/documents/steam/steam-tariff.pdf](https://www.coned.com/_external/cerates/documents/steam/steam-tariff.pdf)
- 2.02. Upon the Customer's compliance with all applicable rules, regulations, terms and conditions as required for the availability and beginning of service under the Service Classification applied for, the Company will duly supply service as may be required for the building or premises for which service is requested.
- 2.03. New Service Requests. A professional engineer or a registered architect shall submit the following to the Company:
- A Steam Service Load Letter (Attachment 1&2). The steam service load letter can be downloaded from the Company's website:  
<https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/steamserviceloadletter.pdf?la=en>
  - A site-specific drawing detailing the POE coordinates (Attachment 3) The site-specific POE form can be downloaded from the Company's website:  
[https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/poe\\_06-web.pdf?la=en](https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/poe_06-web.pdf?la=en)
  - A Signed Application for Steam Service. The Application for Steam Service can be downloaded from the Company's website:  
[https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/steam\\_app08-web.pdf?la=en](https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/steam_app08-web.pdf?la=en)
- 2.04. Modification to Existing Services. A professional engineer or a registered architect shall submit a load letter to the Company for service requests to modify existing service.
- 2.05. The Company shall issue to the Customer a formal written notice within 90 business days of receipt of a signed Application for Steam Service to inform the Customer whether the Application is complete or not complete. An Application for Steam

Service shall not be modified or affected by any promise, agreement or representation, orally or in writing, by any agent or employee of the Company, except as expressly provided in the Rate Schedule.

- 2.06. After the Load Letter and POE form have been received from the Customer, the Company will make a ruling on the meter sizes, service line size, and POE location, after which an Engineering Specification Package (ESP) shall be mailed to the Customer's consulting engineer. The ESP consists of a cover letter; a general specification letter detailing all applicable rules and regulations, meter sizes, service size and POE location; and attachments (any additional Company specifications determined to be necessary on a case-by-case basis; such as, meter specification, trap specification, insulation specification, etc.)

All of the requirements below shall be included in the General Specification Letter:

### 3.0 Certificate of Inspection

- 3.01. Con Edison ("the Company") shall not be required to supply steam service until the Customer's installation shall have been approved by the authorities having jurisdiction over the same; and the Company further reserves the right to withhold its service, or discontinue its service, whenever such installation or part thereof is deemed by the Company to be unsafe, inadequate or unsuitable for receiving the Company's service, or to interfere with or impair the continuity or quality of the Company's service to the Customer or to others.
- 3.02. All high-pressure steam piping systems installed in the Customer's building must be designed and constructed in accordance with The Department of Buildings of the City of New York code requirements. The DOB requires that a registered architect (RA) or a licensed professional engineer (PE) design the high-pressure steam piping systems. The responsible engineer or architect must obtain an application, file plans, and obtain Technical Report (TR-1) approval from the DOB prior to a service turn-on by Con Edison. A copy of the DOB Rules and Regulations for high Pressure Steam Piping Systems is available upon request.
- 3.03. Before the steam is turned on, the Customer shall provide documentation to the Company, signed and sealed by a Professional Engineer (PE), that the Customer-installed facilities conform to DOB code requirements and that the special inspection required by the DOB has been performed.
- 3.04. For buildings that come under the jurisdiction of the DOB, the following is required before steam is turned on:
  1. The Customer must file the following Technical Reports with the DOB:
    - a) A Technical Report Statement of Responsibility (hereafter designated as "Initial TR1") shall be filed at the start of the project. The Initial TR1 shall be signed and dated by the Owner in the section entitled "Owner's Statement and Signature for Progress/Special Inspector"; PE signed, sealed and dated in the appropriate section(s); and High-Pressure Steam Piping (Welding) check box is checked yes in the Special Inspection Items section. A DOB approved Initial TR1 shall be barcoded with the DOB Building Information System ("BIS") Job Number by the DOB.
    - b) A Technical Report Certificate of Complete Inspections/Tests (hereafter designated as "Final TR1") shall be filed at the completion

of the project. Prior to filing the Final TR1, a special inspection, as required by DOB code requirements, shall be performed by a PE. The Final TR1 shall be PE signed, sealed and dated by the PE responsible for the special inspection in the section entitled “Inspection Applicant’s Certification of Completion” and checking the appropriate boxes certifying that all special tests and inspections have been performed and the completed work conforms to DOB code requirements; and High-Pressure Steam Piping (Welding) check box is checked yes in the Special Inspection Items section. A DOB approved Final TR1 shall be barcoded with the BIS Job Number by the DOB.

2. The DOB approved Initial TR1 and the DOB approved Final TR1 shall be submitted to the Company before the steam is turned on.
- 3.05. For buildings that DO NOT come under the jurisdiction of the DOB and are not required to file with the DOB; such as, governmental facilities; federal, city, and state-owned buildings; Amtrak; New York City Transit Authority (NYCTA); Port Authority of New York and New Jersey (PANYNJ); Metropolitan Transit Authority (MTA); Metro North Commuter Railroad; and Long Island Railroad (LIRR), etc., the following is required before steam is turned on:
1. The Company requires that such agencies certify that the design basis for the high-pressure steam piping systems installed in the facilities owned by the same agencies is in compliance with DOB code requirements. The Company also requires such agency to submit a written statement (on the agency’s letterhead paper) that the installation was found satisfactory, and that the agency authorizes connection and turn-on of the required steam service. A letter (on the consulting engineering firm’s letterhead paper) signed and sealed by a licensed PE from the consulting engineering firm of record verifying that all applicable codes have been met and that the new high pressure steam piping installation conforms to DOB code is also required.

Examples of authorizations follow:

- a. Foreign Embassies. A letter from the foreign consulate stating that the installation meets all applicable codes.
- b. Federal and State Buildings. A letter from the project engineer stating that the installation meets all applicable codes.
- c. State Colleges and Universities. A letter from the State Dormitory Authority stating that the installation meets all applicable codes.
- d. NYC Transit Authority, Other Transit Authorities and Federal and State Railroads. A letter from the authority or railroad stating that the installation meets all applicable codes.

NOTE: Subleased space within an exempt facility will come under the jurisdiction of the Department of Buildings of the City of New York.

#### 4.0 High Pressure Steam Piping System Design Requirements

- 4.01. The PE responsible for filing the design plans with the DOB shall also include the following Company requirements in the plans:

1. The Customer shall provide suitable space, acceptable to the Company, for the proper installation, inspection, protection and maintenance of the Company's meters and service equipment, which space shall be as near the point of service termination as practicable. The Customer shall furnish, install and maintain all facilities required for his utilization of steam service including service stop valves, meter stop valves, primary and secondary service pressure reducing valves, meter supports, and all piping between the point of service termination and the Customer's utilization equipment. Where telephone service is required for remote communications, the Customer shall furnish and install all necessary telephone cable.
2. The high pressure piping system installed by the Customer from the point of service termination up to and including the meter outlet stop valves shall be subject to the Company's final approval, and the Customer shall adapt his equipment and otherwise provide for the proper utilization of the Company's service.
3. For service piping connected to the Company distribution main: The system, from the point of entry (POE) up to and including all of the Customer's secondary pressure reducing station outlet stop valves and bypasses, shall be designed for a pressure of 200 psi and a temperature of 413 degrees Fahrenheit; included shall be all piping, fittings, valves, flanges, traps, reducing valves, etc. Unless specifically stated otherwise, all piping shall be joined by welding and welded flange construction. All piping shall be ASTM A-53 Grade B, Seamless.
4. For service piping connected to the Company transmission main: The system, from the point of entry (POE) up to and including all of the Customer's secondary pressure reducing station outlet stop valves and bypasses, shall be designed for a pressure of 400 psi and a temperature of 475 degrees Fahrenheit; included shall be all piping, fittings, valves, flanges, traps, reducing valves, etc. Unless specifically stated otherwise, all piping shall be joined by welding and welded flange construction. All piping shall be ASTM A-53 Grade B, Seamless.
5. All pipe connections from the POE up to and including the steam meter outlet valves (see attachment #4) shall be installed subject to the Company's final approval before steam is turned on, and the same shall be installed in conformance with the Company's specifications, and the Customer shall, if required, adapt his/her equipment and otherwise provide for the proper utilization of the Company's service.
6. The Customer shall furnish, install and maintain suitable equipment for cooling of condensate to the sewer and shall comply with Company requirements and the rules and regulations of the New York City Department of Environmental Protection.
7. Within a reasonable time after acceptance by the Company of the signed Agreement for Steam Service, the Company will install a service line to a point at the property line or suitable sub sidewalk space, determined by the Company to be convenient and practicable. Where a basement wall or vault wall is located at such point, the Company will extend its service line through a sleeve provided and installed by the Customer in such wall to a point

- immediately inside the wall. The point to which the Company so extends its service line shall constitute the point of service termination.
8. Steam service will be supplied to the Customer's premises through a single service line, except where for reasons of Company economy, conditions on the Company's distribution system, improvement of service conditions, or volume of the Customer's requirements, the Company elects to install more than one service line.
  9. The Company reserves the right to determine the location of any service line, and to avoid misunderstanding, the Customer before starting work shall consult the Company as to the exact location of the point of service termination.
  10. The final elevation of a new steam service shall be determined by field conditions. If field conditions require changes, the point to which Con Edison extends its service line will constitute the point of service termination.
  11. The Customer shall design his interior piping such that the pressure drop from the POE up to steam meter(s) does not exceed 2 psi at an assumed pressure of 125 psi
  12. All steam stop valves from the POE up to and including the "House" valve(s) shall be ASME/ANSI B16.34 Class 300, cast or forged steel; cast iron is NOT permitted. The House valve is the first isolation valve(s) after the steam meter outlet stop valve(s) that isolates the Customer's steam piping system from the metered steam service (see Attachment #4).
  13. Pressure Reducing Valve (PRV) stations, including its bypasses, and steam piping shall be designed and installed in accordance with ASME B31.1 - latest revision, Power Piping Code, sections 122.5, 122.6 and 122.14. Hand controlled bypass valves having a capacity ( $c_v$ ) no greater than the corresponding PRV(s) may be installed around the PRV(s).
  14. Adequate means of egress from the meter room shall be addressed in the initial design and must be kept clear at all times. All exit doors must swing outward and away from the steam meter room.



## 5.0 Stress Analysis Requirements

5.01. The PE responsible for submitting the design plans with the DOB for approval shall also include the following in the plans:

1. Size and location of all piping; the operating pressures and temperatures; the location, type, specifications and details of all expansion joints; and the design, size, material and location of all anchors, guides, supports, and auxiliary steel, and the stresses thereon.
2. The stress analysis shall incorporate the following requirements:
  - Design to accommodate a possible two inch (2") deflection from the Con Edison street service piping;
  - The pressure and temperature design basis for the model shall be 200 psig and 413°F for buildings supplied from the Company distribution main; or, 400 psig and 475 °F for buildings supplied from the Company transmission main, respectively.
  - Model the limits of the stress analysis from the POE (with the Dresser Coupling modeled as a rigid guide/moving anchor having two inch movement into the building) up to and including the first anchor or guide point AFTER the secondary PRV station. In addition, the stress analysis should include all high pressure piping systems installed after the steam meter run piping; for example, high pressure service up to a steam turbine's inlet nozzle block. The system shall be modeled for three cases: Pressure & Dead Weight, Thermal & Initial Movement at the POE, and a combination of the preceding. The analysis shall include results for global forces and moments, deflections and rotations, and stresses (including the Code stresses). Stresses shall not exceed allowable for the actual materials used in the construction of the high pressure piping systems as required by ASME B31.1. The model shall accurately reflect the final, installed conditions.
  - Ensure that the pipe is pitched (and shall remain pitched in the hot condition) such that there is continuous drainage from any point in the system to a condensate removal location (steam trap).

5.02. Before the steam is turned on, a PE shall submit to the Company, a letter, PE signed and sealed, certifying that the stress analysis has been reviewed and accepted with notations; the analysis model conforms to the as-constructed conditions and its design basis pressure and temperature limits is 200 psi and 413°F for services connected to the Company distribution main (or 400 psi and 475 °F for services connected to the Company transmission main); the stresses determined by the analysis does not exceed the ASME B31.1 allowable stresses for the materials used in construction of the high pressure piping system; and an inspection of the installed piping was conducted to confirm that it conforms to the approved stress analysis. The letter shall also include the limits of the model; e.g., from the POE up to and including the low pressure header after the secondary PRV stop valve.

## 6.0 Welding Requirements

6.01. All piping over two (2) inches in diameter shall be butt-welded. Piping 2 inches and under in diameter may be socket welded.

6.02. Radiographic (X-ray) examination, when required, shall be performed on butt welds in accordance with NYC DOB code requirements.

## 7.0 Steam Meter Station Requirements

- 7.01. The Company will determine the type, size, make and number of meters best suited to the service requirements. The Customer must design and install (or modify) the steam meter station in a manner specified by the Company.
- 7.02. The Company current requirements for meters, traps, insulation and other applicable specifications can be found at the website address:  
<https://www.coned.com/en/commercial-industrial/steam/apply-for-steam-services/steam-engineering-specifications>
- 7.03. The Customer shall provide and continue to maintain a clear unobstructed space, in strict accordance with the Company's specifications, for the proper installation, inspection, protection and maintenance of the Company's meters and service equipment. The area below the meter piping shall also be kept clear and unobstructed for periodic maintenance and inspection of Company maintained equipment. The Customer shall furnish, install and maintain all facilities required for his utilization of service including inside service valve(s), meter stop valves, primary and secondary pressure reducing valves, meter supports, and all piping between the point of entry and the Customer's steam-utilization equipment.
- 7.04. **Existing Steam Customer.** The Company may require changes and alterations to the existing steam meter station, if there is a load increase or decrease (as per the load letter submitted by the Customer to the Company) that will affect the Company's ability to accurately meter the Customer's steam consumption. Any changes that are to be made to the steam meter station as a result of a load change shall be governed by the requirements applying to new installations. The Customer must design and install (or modify) the steam meter station in a manner specified by the Company.
- 7.05. Motorized valves (when specified), steam meters, flow computers and accessory equipment shall be installed in an adequately ventilated area such that the ambient temperature does not exceed 100°F (38°C).
- 7.06. The Customer shall arrange to supply a source of 'unmetered' electric from the electric POE/Vault/CT cabinet to the steam meter panel located in the steam meter room. As an alternate, the Customer may choose to supply 110 VAC (single phase) or 220 VAC (3 phase), depending upon the meter equipment requirements, from its distribution panels. This feed must be a dedicated source of power for Con Edison Steam Distribution's use ONLY, under the direct control or lock by Con Edison Steam Distribution. In the latter case, the owner of the facility must submit a letter to Con Edison Steam Distribution Engineering, granting Con Edison use of the Customer's metered electric power at no charge.
- 7.07. The Customer shall arrange to have a direct telephone line run from the Customer's demarcation or frame room where the local telephone company's terminations are made to the steam meter panel. The telephone line shall be terminated at Con Edison's meter panel with a duplex RJ11 4-conductor modular plug. The Customer shall also install a modem box that is provided by the Company in proximity to the telephone plug.

## 8.0 Design and Mechanical Drawing Requirements

- 8.01. Prior to any steam piping installation or modification, the Company requires that installation drawings be submitted. Drawings shall include all piping from the POE up to and including the meter outlet valves and methods of Condensate disposal for all traps installed upstream of the steam meters.

1. Responsible engineer(s) shall submit three (3) sets of design drawings with their PE seal imprinted upon them. The design drawings shall include the pressure reducing valve (PRV) schedule indicating type, size, and design and operating capacity for each PRV; and shall include the design requirements for the tank specified for use to handle the condensate discharged from all traps before the steam meters.
  2. Responsible mechanical contractors shall submit three (3) sets of mechanical (shop) drawings with the Engineer's approval stamp imprinted upon them.
- 8.02. The Company shall review and return drawings with notations to the Customer within 30 business days of receipt of the drawings. The drawings shall be stamped by the Company as accepted with notations or returned for corrections.

## 9.0 Company and Customer Furnished Equipment

- 9.01. After review and acceptance by the Company of the customer's design and shop drawings, Company furnished equipment shall be made available at a designated Company storeroom for pickup and installation by the Customer. The Company will furnish the items of service equipment (steam meters, steam flow computers, meter run strainers, traps and trap strainers before steam meters, etc.) specified in the Steam Service Rules Book which can found at the following website address:

<https://www.coned.com/-/media/files/coned/documents/for-commercial-industries/steam/apply-for-steam-services/steam-engineering-specifications/steam-services-handbook.pdf?la=en>

- 9.02. The equipment furnished by the Company is to be installed by the Customer with all other equipment and piping connections required for the supply of steam and disposal of condensate.
- 9.03. Certain customer furnished items, such as valves, flow conditioners and service sleeves (Dresser Coupling) require extended lead-time for procurement. The Customer should therefore review his material requirements and order such components in advance of standard "shelf items". In particular, the Dresser Coupling is a long lead item AND may be needed long before the meter station is constructed if the street piping is to be installed before or during the early stages of building construction.
- 9.04. Spool pieces will be provided by the Company for installation in place of steam meters. The Company, before the time of the initial steam turn-on, will remove the spool pieces from the line and install steam meters in their place.

## 10.0 Requirements for Energizing the Steam Service

- 10.01. The Company shall install service pipe to a point at the property line or suitable subsidewalk space, determined by the Company to be convenient and practicable. Where a basement wall or vault wall is located at such point, the Company will extend its service line through the POE using a sleeve provided and installed by the Customer in such wall to a point immediately inside the wall. The sleeve shall be in a manner specified by the Company.
- 10.02. The Company reserves the right to determine the location of any service line, and to avoid misunderstanding, the Customer before starting work shall consult the Company as to the exact location of the point of service termination.

- 10.03. In order to alleviate possible corrosion on services installed in advance of service activation, while the building is being constructed or renovated, the steam service should be energized up to the inside service valve(s) (ISV). The ISV is the first steam isolation valve installed inside the Customer's building directly after the POE (see Attachment #4). The Customer shall install the ISV and temporary trap station(s) upstream of the ISV. The ISV and temporary trap station must be installed in a manner specified by the Company. The trap(s) before the ISV must remain in service and working at all times.
- For New Service Piping: In general, no later than 6 consecutive months after the service pipe is installed, it shall be energized up to the ISV; or, if the ISV is not installed, it shall be energized up to a blind flange or boiler cap located as close as possible to the point of entry. If, by the request or requirement of the Customer, the outside service piping and/or Company equipment is installed more than six (6) months prior to the actual date of the initial service turn-on, the Customer shall be liable for any damages to the same. The Customer is responsible for the cost to repair or replace Company-furnished equipment and/or outside steam service piping that is damaged as a result of extended service outages.
  - For Existing Service Piping: The Customer shall be liable for any damages to the existing service pipe and is responsible for the cost to repair or replace it. As a result of demolition, renovation, or any other construction related work, the existing service pipe may need to be de-energized for safety reasons. In order to preserve the service pipe, it shall not remain de-energized for periods exceeding eighteen (18) consecutive months. The service pipe shall be energized up to the ISV within 18 consecutive months; or, if the ISV is not installed, it shall be energized up to a blind flange or boiler cap located as close as possible to the point of entry. If the service pipe is de-energized for periods exceeding 18 consecutive months, the service shall be turned on slowly and monitored by the Company for integrity for five (5) days.
- 10.04. After the signed application for steam service, the applicable fees and customer charges, and the proper certificate of inspection has been received, the Company shall energize the steam service up to the House valve(s). The House valve(s) must be in the closed position before the Company introduces steam into the service line. The Company shall energize the steam service up to the House valve(s) for all steam turn-ons subsequent to the initial turn-on of the building.
- 10.05. All traps and condensate returns must be installed and ready for service before service activation. All high-pressure trap stations installed before the meter must be installed in a manner specified by the Company.
- 10.06. The flash or dilution tank must be installed and ready for service before steam service activation. The tank must be an ASME certified tank rated for 200 psi steam service.
- 10.07. The Customer should notify the Company forty-eight hours in advance of the desired time for service energization.

**SECTION III.****INTERCONNECTING CUSTOMER-OWNED STEAM GENERATING EQUIPMENT TO THE CON EDISON STEAM DISTRIBUTION SYSTEM (BACKUP/SUPPLEMENTARY SERVICE)****11.0 Interconnection To Con Edison Steam Distribution System**

- 11.01. **Applicability:** This Section III applies to customers who are installing on-site distributed generation with heat recovery steam generators, on-site boilers, or any other on-site steam generating equipment. The requirements set forth herein are subject to the Company's objective that the interconnection should preserve the safety, reliability, and operational efficiency of the steam distribution system, consistent with the need to provide the lowest cost to the customer. Accordingly, the requirements set forth herein may vary for a particular on-site generator.
- 11.02. Interconnection exists inside a Customer's building when high-pressure (greater than 15 psi) steam pipe installed to transport steam from the Customer's generating equipment is connected to high-pressure (greater than 15 psi) steam pipe that is directly supplied by the Company's steam distribution system. The interconnection can occur at one or more junctions (hereinafter referred to as "tie-in points").
- 11.03. Physical separation(s) (hereinafter referred to as "disconnect(s)") at or before the tie-in points must exist and remain in place until the requirements of any authority having jurisdiction and requirements of the Company have been satisfied. If the Customer's steam generating equipment has been installed and tied-in prior to satisfying the Company requirements for interconnection, a disconnect must be installed and remain in place until such requirements have been met.
- A Disconnect can be a closed valve. The valve must be an ASME/ANSI B16.34 Class 300 valve. A blank, steel plate ("frying pan") must be installed between one of the flanges of the valve and the flange of the pipe. The thickness of the plate must be sized to withstand the total thrust force exerted against the plate by 200 psi steam. The plate's diameter must be slightly less than diameter of the inner-circle formed by the bolt holes of the flange. The valve will be wire sealed in the closed position by the Company.
  - A Disconnect can be a physical break in the pipe. All open-ended pipes must either be capped off with a boiler cap or blanked with an ANSI B16.34 Class 300 blind flange.
  - A Disconnect can be any means that maintain a complete separation between the high-pressure steam piping system supplied by the Company steam distribution system and the high-pressure steam piping system served by the Customer's steam generating equipment.

**12.0 Requirements for Interconnection**

All of the following Company requirements must be satisfied before the disconnect(s) can be removed:

1. The consulting engineer of record must mail a load letter to Steam Distribution Engineering (SDE). The load letter must provide a detailed breakdown of the winter and summer steam load requirements for the building as it relates to the installation of the steam generating equipment. The load letter should clearly show a breakdown of the peak winter and summer steam load requirements for the building when the Customer's

cogeneration plant is in service and not in service. All uses (heat, domestic hotwater, air conditioning, etc.) for the hotwater and/or steam produced by the Customer's cogeneration plant must be clearly defined in the load letter. The steam equivalent in pounds per hour for the hotwater load of the Customer's cogeneration plant must be submitted. The load letter should include the planned operating hours of the Customer's cogeneration plant.

2. The Customer drawings, design and shop, must be reviewed and accepted by SDE. Submittal of drawings must comply with section 8.0. The design drawings must include piping schematics for all piping to/from the CHP/steam generating equipment (i.e., hotwater supply/return piping system and steam piping system). The drawings should clearly show how the CHP/steam generating equipment interconnects with the steam piping system supplied by the Company. Schedules and equipment specifications for all CHP/steam generating equipment (steam generators, heat exchangers, pumps, pressure reducing valves, condensate return system, etc.) shall also be submitted to the Company for review. The design drawings should also include the piping schematics and equipment details for the backflow prevention system. The shop drawings shall include all piping from POE up to and including the meter outlet valves and methods of Condensate disposal for all traps installed upstream of the steam meters. Responsible engineer(s) shall submit three (3) sets of design drawings with their PE seal imprinted upon them. Responsible mechanical contractors shall submit three (3) sets of mechanical (shop) drawings with the Engineer's approval stamp imprinted upon them.
3. A stress analysis, as defined in section 5.0, must be reviewed and accepted by the engineer of record. A letter must be submitted to the Company certifying the same as per section 5.0.
4. A street service valve, if none exists, shall be installed by the Company at the Customer's expense. The street service valve shall be installed prior to the time steam service is required by the Customer.
5. The steam meter station shall be modified, if required – as defined in section 7.0, in accordance to current Company specifications.
6. The Customer's steam plant design and installation shall have the necessary protection and design features to prevent:
  - Over-pressurization (operating at steam pressures that exceed the 200 psi) of the 200-psi steam piping system
  - Over-pressurization (operating at steam pressures that exceed the design pressure of the Customer's steam generating equipment) of the Customer's steam generating equipment and associated steam piping system
  - Backflowing steam that is generated by the Customer's plant through the steam meter station and into Con Edison street steam distribution system.
7. The proper Certificate of Inspection, as defined in section 3.0, must be received by the Company.
8. The Customer shall pay to the Company any applicable charges, fees and payments required for interconnection.
9. **For new customers.** A signed Application for Steam Service must be received by the Company.

### 13.0 Backflow Prevention Requirements

13.01. To prevent the steam produced by Customer's steam generating equipment from back flowing through the steam meter station and into the Company's street steam distribution system, the Customer shall install a control system that satisfies the following minimum requirements:

1. The control system shall have automatic pressure regulation such that, when the Customer's plant is supplying steam to the same high-pressure piping system that is being served by the Company, the steam pressure measured downstream of a Customer-installed control valve(s) is less than the Company-delivered steam pressure measured at the Company steam meter outlet header (see Attachment #4). The direction of steam flow will always be towards the Customer's steam utilization equipment as long as a reduction in pressure is maintained. If under any conditions or circumstances that the reduced pressure measured downstream of a Customer-installed control valve (s) cannot be maintained by the control valve(s), then a trip valve shall be set to close immediately to isolate the high-pressure piping system served by the Company from the high-pressure piping system supplied by the Customer's steam generating equipment.
2. A piping schematic is included as an attachment to this guide (see Attachment #5). The schematic depicts a recommended piping arrangement for the backflow prevention control system. The final placement of the control valve(s) and trip valve(s) shall be determined on a case by case basis in order to best serve the steam energy needs of the building. Final piping schematics and 'As-Built' schematics are to be maintained by the Customer and the Company.
3. Any control valve installed for the sole purpose of preventing backflow must be installed downstream of the "House" valve(s) on a common steam header that supplies steam to all of the high-pressure branches and risers that feed the building's steam-utilization equipment (heating, domestic hotwater and cooling equipment). The House valve is the first isolation valve after the steam meter outlet stop valve(s) that isolate(s) the Customer's building from the metered steam service (see Attachment #5). If there is no House valve, then the Customer must install a House valve.
4. The design features of the steam backflow prevention control system must not include any component of the steam meter station. The steam meter station must operate freely and independently of any control scenario designed to prevent backflow. The steam meter station includes the common headers connecting the individual meter piping runs and all the pipe, fittings, and valves that are installed between the common headers. The common headers are normally designated by the Company as the meter inlet header and the meter outlet header (see Attachment #4).
5. The control valve(s) installed for the sole purpose of preventing backflow:
  - Must be an ASME/ANSI B16.34 Class 300 valve. The sealing materials must be rated for a steam temperature of 413 degrees Fahrenheit.
  - Must allow positive closure for isolation - ANSI B16.104/FCI 70.2 Class 5 shut off or higher leakage rate classification.
    - The control valve(s) must be certified at least once every five years to have an ANSI B16.104/FCI 70.2 Class 5 shut-off or higher leakage rate

classification. The Customer shall maintain all certification documentation for inspection by the Company.

- Cannot be a check valve. The Company does not permit check valves for backflow prevention protection.
- Must be properly sized and automatically controlled to continuously maintain a steam pressure (hereinafter called “the required reduced pressure”), measured downstream of the Customer-installed control valve(s), that is less than the steam pressure measured at the Company steam meter outlet header. If the pressure measured downstream of the Customer-installed control valve(s) is equal to the pressure measured at the Company steam meter outlet header, an automatic trip valve shall be set to close immediately to isolate the high-pressure piping system served by the Company from the high-pressure piping system supplied by the Customer’s steam generating equipment. The required reduced pressure and other steam pressures required for proper control and monitoring of the backflow prevention control system must be measured by a gauge pressure transmitter that has a high degree of accuracy.
- Must be designed for throttling service. The control valve(s) cannot be a gate valve or any other type of valve that is prone to erosion of the valve seat/disk if throttled.
- Cannot have any provision or means of bypassing the control valve(s) or means of fixing the control valve(s) in one position. The control valve(s) must always modulate to maintain the required reduced pressure in the steam header.
- Can be a normally-open (fail open) or normally-closed (fail close) valve. If the Customer installs a normally-open control valve, then the Customer must install a trip valve(s) that is set to close immediately after the control valve(s) fail open. The trip valve(s) upon closure must isolate the Customer’s steam generating equipment steam supply line from the high-pressure piping system supplied by Con Edison steam.

#### 6. Trip Valve Requirements.

- In addition to a control valve(s) that modulate to maintain the required reduce pressure, the Customer shall install a trip valve(s) that shall be set to close immediately under certain conditions that may allow backflowing of customer steam through the Company steam meter station and into the street steam distribution system.
- The trip valve(s) must be an ASME/ANSI B16.34 Class 300 valve.
- The trip valve(s) must be a non-modulating valve designed for on-off service. It must have an ANSI B16.104/FCI 70.2 Class 5 shut off or higher leak rate classification.
  - A trip valve functionality test must be performed by the Customer at least once every calendar year. The valve must be observed to operate as designed based upon the original installation requirements.
  - To verify that the trip valve(s) are not leaking through when the valve is in the closed position, a valve seat tightness test must be performed at least once every calendar year. The seat tightness test shall be performed while the valve is in the fully closed position and the steam pipe upstream of the



valve is fully pressurized with high-pressure steam. The steam pressure in the pipe shall be at normal operating pressure. The steam pipe downstream of the valve should be pressure-free (no steam in the pipe). A blow-off valve must be installed in the steam pipe downstream of the trip valve(s). The blow-off valve must be fully open during the valve seat tightness test. No steam vapor or condensate droplets discharging from the fully opened blow-off valve must be observed visually during the test. If the trip valve(s) is found to be leaking through, then it must be replaced immediately.

- The Company requires written certification that the functionality test and the valve seat tightness test were successfully performed.
- The Company reserves the right to witness the functionality test and the valve seat tightness test. The Customer should notify the Company at least ten business days in advance of the test to give the Company the opportunity to determine whether Company personnel should be present during the test.
- The trip valve(s) must be certified at least once every four years to have an ANSI B16.104/FCI 70.2 Class 5 shut-off or higher leakage rate classification. The Customer shall maintain all certification documentation for inspection by the Company.
- The trip valve(s) shall be installed at any location upstream of (before) the tie-in point(s) – on the Customer’s steam plant side of the tie-in point.
- The trip valve(s) shall immediately close when one or more of the following events occur:
  - Steam pressure measured after the control valve(s) equals the steam pressure measured at the meter outlet.
  - Loss of electric power to the control valve controls, loss of electric power to the trip valve controls, or loss of electric power to any auxiliary equipment needed to maintain control valve or trip valve operation as designed.
  - Loss of electric power to the Master Controller
  - Pressure measured at the meter inlet header is 50 psi or less
  - Control valve(s) is out of service for any reason or manually bypassed
  - Loss of pressure signal from any of the gauge pressure transmitters installed
  - The allowable tolerance of plus or minus two (2) psi between the monitoring and control gauge pressure transmitters is exceeded.
- Trip Valve Requirements for Customers installing **Low-Pressure** (less than 15 psi) steam generating equipment that will supply steam to the low-pressure piping system that is also supplied by the Company’s high-pressure steam distribution system
  - When there is an emergency or planned outage on the Company’s steam distribution system, the potential exists for the low-pressure steam generated by the Customer’s equipment to

backflow into the Company's street steam distribution piping system. A trip valve must be installed to prevent this from occurring.

- The trip valve(s) must be a non-modulating valve designed for on-off service. It must have an ANSI B16.104/FCI 70.2 Class 5 shut off or higher leak rate classification.
- The trip valve(s) must be certified at least once every four years to have an ANSI B16.104/FCI 70.2 Class 5 shut-off or higher leakage rate classification. The Customer shall maintain all certification documentation for inspection by the Company.
- The trip valve(s) shall immediately close when one or more of the following events occur:
  - i. Loss of electric power to the trip valve controls, or loss of electric power to any auxiliary equipment needed to maintain trip valve operation as designed.
  - ii. Loss of electric power to the Master Controller
  - iii. Pressure measured at the meter inlet header is 50 psi or less
  - iv. Loss of pressure signal from any of the gauge pressure transmitters installed
  - v. The allowable tolerance of plus or minus two (2) psi between the monitoring and control gauge pressure transmitters is exceeded.

#### 7. Gauge Pressure (GP) Transmitter Requirements

- The steam pressures must be measured by gauge pressure transmitters.
- The GP transmitters must have 0.1% of span or better accuracy.
- Each GP transmitter must have a calibrated measuring range between 0 to 250 psig and send an analog signal (4-20 milliamps or 1-5 volts) to a datalogger capable recording the steam pressure every minute and storing the data electronically for at least forty-five (45) days.
- GP transmitters must be installed by the Customer at the meter inlet header; at the meter outlet header (or at some location determined on a case-by-case basis after house valve); and at a location directly after each control valve.
- Each GP transmitter installed for the purpose of controlling the positioning of the control valve(s) or triggering the trip valve(s) must be installed in duplicate. One gauge pressure (GP) transmitter shall be used for normal operation/control of the valve(s); the other GP transmitter, for performance monitoring and comparison. Redundant GP transmitters are required for both High-pressure and Low-pressure steam generators installed onsite at Customer facilities.
- Each GP transmitter sensing line shall be piped to different pressure taps (cannot share the same pressure tap) and checked for leakage at least once a week by the Customer.
- The GP transmitter used for monitoring shall be the standard of pressure measurement at that pressure tap location. The allowable tolerance shall be

plus or minus two (2) psi – in other words, the control GP transmitter must be within two (2) psi of the monitoring GP transmitter at all times. If the tolerance is exceeded, the associated trip valve shall immediately close. An alarm must be generated immediately to alert the Customer that the control GP transmitter must be calibrated immediately in accordance with Company requirements.

- **GP Transmitter Calibration Test Requirements.**

- Each GP transmitter must be calibrated with a precision deadweight tester.
- The deadweight standard shall have an accuracy that is 0.025% of indicated reading or better and traceable to the National Institute of Standards and Technology (NIST).
- The calibration test shall consist of “as-found” and “as-left” tests. The as-found test readings should be taken before the transmitter is calibrated; the as-left pressure readings, after the transmitter has been calibrated. Each test should show the deadweight pressure input reading, actual pressure reading from transmitter, percent difference between deadweight input and actual pressure reading for each pressure data point. The expected current output, the actual current output and the percent difference between the two should also be recorded at each pressure data point. Pressure data points should be taken as follows: increasing from zero percent (0%) of full scale to one-hundred percent (100%) of full scale and decreasing back to zero percent of full scale at increments of ten percent (10%) of full scale. All data points on the as-left test must be within the allowable accuracy of 0.1% of span or better as compared to the deadweight standard pressure readings or expected current output readings.
- Each GP transmitter installed for performance monitoring shall be checked once each quarter of the calendar year against a precision deadweight tester. The deadweight standard shall have an accuracy that is 0.025% of indicated reading or better and traceable to the National Institute of Standards and Technology (NIST). The GP transmitter shall be checked at an increment of 10% from 0 to 100% of full scale. The allowable tolerance between the GP Transmitter and the deadweight standard should not exceed plus or minus 0.1% of span. If this tolerance is exceeded, then the monitoring GP transmitter must be calibrated immediately in accordance with the calibration test requirements.
- The Customer must submit a detailed test procedure to the Company for approval. The test procedure must establish that the required tolerances for calibration tests and quarterly performance checks meet Company requirements.
- The Customer is responsible for the testing and a qualified individual must perform the calibration tests in accordance with the GP transmitter’s manufacturer’s published calibration procedures. Qualified, trained individuals include professional

engineers; factory trained and certified technicians; and experienced instrumentation and controls technicians.

- The Company reserves the right to witness the testing and require written certification that the testing was successfully performed. The Customer should notify the Company at least ten business days in advance of the calibration test or performance check to give the Company the opportunity to determine whether Company personnel should be present during the test.
  - Each GP transmitter must be calibrated every twelve months; or when the transmitter is out of tolerance; or when the transmitter is replaced. The Company must receive a copy of the factory certification that each newly installed GP transmitter has been tested in accordance to the above standards.
  - The Customer should maintain the annual calibration test reports and the quarterly performance check reports for review upon request by the Company to demonstrate that the GP transmitters are maintained and functioning properly. The Company shall be given access to inspect the GP transmitters and associated piping at any time.
  - Raw test data and the completed tests must be stored for a minimum of six (6) years and made available for the Company's review at any time.
8. Datalogger/Master Controller Requirements
- The datalogger must be capable of storing the pressure data for forty-five (45) days minimum (After 45 days, the data recorded at the beginning of the 45-day period shall be overwritten). The recorded data shall then be transferred to a data repository device for a minimum of one year.
  - The Company shall witness the Master controller, control valve(s), and trip valve(s) operation before the disconnect(s) is (are) removed. All protection and design features of the backflow prevention system must be demonstrated to function as designed before the Company shall permit the removal of any - disconnect(s).
  - This is required for High-pressure and Low-pressure steam generators installed onsite at Customer facilities.

#### 14.0 Company Planned Maintenance Steam Outages

- 14.01. Before work is to be performed inside a Customer's facility on any equipment furnished by the Company (traps/strainers before meters, meters, motorized angle globe valves, or motorized ball valves), an authorized Company representative will notify the building's Management Office (usually the engineer's office), and will close the meter inlet and/or outlet valves of an individual metered run of a multi-metered run station in order to perform the needed work safely.
- In the event the individual metered run isolation is not sufficient to provide a complete isolation of steam for work to be performed safely, the Company will plan a steam outage for the building. In this case, the street service valve and/or inside service valve will be closed.
  - If steam outage for the building is required, the following must be done:

- For ample assurance that steam from the Customer’s cogeneration plant shall not flow into the isolated area where Company personnel is working, the Customer must install a double block and bleed arrangement for each house valve associated with the onsite cogeneration plant steam system. The customer must install an additional stop valve (‘secondary house valve’) downstream of the house valve and a 1” bleed valve in-between the two valves. All valve(s) must be ASME/ANSI B16.34 Class 300 valves. The Customer must close the house valve(s) and the secondary house valve(s) AND open the 1” bleed valve(s) BEFORE Company personnel performs any work. The Company will wire seal and tag the house valves in the closed position and the bleed valves in the open position. The wire seal and tag must remain on the valves until all work has been completed.
  - If the ‘house valve’ double block and bleed arrangements are not installed, then the Customer must isolate the Customer’s onsite steam generating equipment from the high pressure steam piping system served by the Company’s steam distribution system. This must be accomplished by closing the main steam stop valve(s) located downstream of the outlet of the Customer’s steam generators or upstream of the tie-in points (on the Customer’s steam generator supply side).
  - After the work has been completed by the Company, the Company will energize the steam service up to the Customer’s “House” valve(s).
- 14.02. Before work is to be performed on the Con Edison steam distribution system located outside of the Customer’s building, an authorized Company representative will notify the building’s Management Office (usually the engineer’s office).
- The Customer must close the house valve(s) and the secondary house valve(s) AND open the 1” bleed valve(s) BEFORE Company personnel performs any work. The Company will wire seal and tag the house valves in the closed position and the bleed valves in the open position. The wire seal and tag must remain on the valves until all work has been completed.
  - If the ‘house valve’ double block and bleed arrangements are not installed, then the Customer must isolate the Customer’s onsite steam generating equipment from the high pressure steam piping system served by the Company’s steam distribution system. This must be accomplished by closing the main steam stop valve(s) located directly downstream of the outlet of the Customer’s steam generators or upstream of the tie-in points (on the Customer’s steam generator supply side).
  - After the work has been completed by the Company, the Company will energize the steam service up to the Customer’s “House” valve(s).

## 15.0 Maintenance of Customer’s Equipment

- 15.01. The Customer shall perform periodic maintenance and calibration, if applicable, on all components of the backflow prevention control system (datalogger, master controller, control valves, trip valves, traps, GP transmitters and other equipment) to meet the Company’s specifications unless the manufacturer recommends a more frequent schedule for maintenance.

- 15.02. Failure by the Customer to perform periodic maintenance as required in this procedure and contractual agreements with the Company will result in a discontinuance of service until this requirement is satisfied.

**16.0 Reference Documents**

- 16.01. Power Piping Code, ASME B 31.1
- 16.02. Department of Buildings of the City of New York Rules & Regulations
- 16.03. PSC no. 3 Steam Tariff, Schedule for Steam Service

REVISION 1

Next Scheduled Review: August 2024

ATTACHMENT #1, STEAM SERVICE LOAD LETTER

CONSOLIDATED EDISON STEAM BUSINESS DEVELOPMENT



## Steam Service Load Letter

Today's Date:  /  /  Date Steam Service Modified:  /  /

Date Street Service is Required:  /  /  Date Steam Service is Required :  /  /

Service Address: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Consulting Engineering Firm: \_\_\_\_\_

Contact: \_\_\_\_\_ Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Address: \_\_\_\_\_

Requested steam service point of entry (POE): \_\_\_\_\_

<b>Building Type:</b>	<b>% by Sq. Ft.</b>	<b>Loads:</b>	Number of dwelling units: _____
<input type="checkbox"/> Residential	_____	<input type="checkbox"/> Modifications	Number of Stories: _____
<input type="checkbox"/> Industrial	_____	<input type="checkbox"/> New	Building Size (square feet): _____
<input type="checkbox"/> Commercial	_____		

Type of steam heating system (steam perimeter, hot water circulation, etc.): \_\_\_\_\_

Type of A/C equipment (turbine, hp absorption, or lp absorption): \_\_\_\_\_

Number of units: \_\_\_\_\_

1. A/C tonnage _____	2. A/C tonnage _____	3. A/C tonnage _____
Steam lb/ton _____	Steam lb/ton _____	Steam lb/ton _____

Maximum pressure required \_\_\_\_\_ If in excess of 75 psig, explain: \_\_\_\_\_

Load Data (lb/hr)	New Loads (Show Total)		Modifications to Existing Loads (Check Additional <input type="checkbox"/> or Loss <input type="checkbox"/> )	
	Winter	Summer	Winter	Summer
<input type="checkbox"/> Heat	_____	_____	_____	_____
<input type="checkbox"/> Hot Water	_____	_____	_____	_____
<input type="checkbox"/> Air Conditioning	_____	_____	_____	_____
<input type="checkbox"/> Kitchen	_____	_____	_____	_____
<input type="checkbox"/> Ventilation	_____	_____	_____	_____
<input type="checkbox"/> Other (sterilization, reheat, preheat, restaurant, etc.)	_____	_____	_____	_____
<b>Total</b>	_____	_____	_____	_____

Do you use an alternative source of energy (gas or electric)?

If yes, select one:

If yes, for what use? \_\_\_\_\_





ATTACHMENT #3, POE SITE DRAWING

**Consolidated Edison  
Steam Services**



**Point of Entry (POE) Form  
Determination for New Services**  
Site Drawing

Please provide the following information on the site drawing below. Indicate the point of entry (POE). Note, under Specific Conditions, any other utility penetrations within five feet of that point.

Site reference points are needed in order for Con Edison to establish the point of entry of a proposed steam service. Building, property, and curb line references need to originate from a fixed, current, and clearly visible point of reference. Compass points ("East," "West," "South," or "North") should be used with accurate numerical foot and inch measurements.

The building location should be clearly identified by address and street name. The nearest cross streets or avenues should be identified.

If the building number or boundaries are different from those shown in the current *Sandborn Manhattan Land Book*, or similar reference, this should be noted, and suitable reference points should be chosen to identify the property in question.

The building, property, and curb lines should be accurate, in accordance with the Land Book or with current renovations. The POE description should be given from the nearest building or property line location that presently exists with the correct building number. If the nearby building or property line is not easily determined in the field, alternate reference points should be utilized.

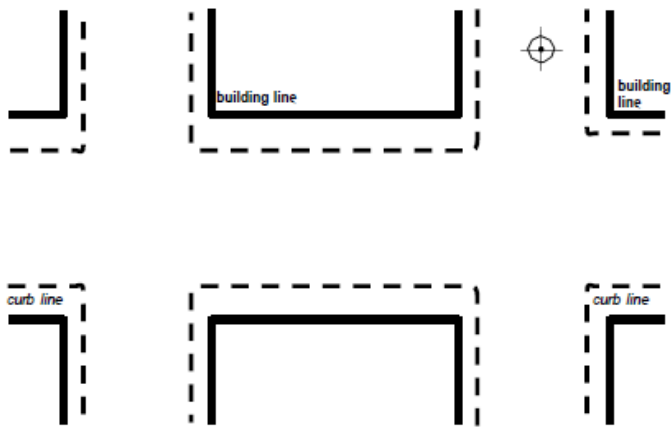
When the building is not actually at the property line, the measurement between the building or vault and property line should be given.

The POE description should be given from the nearest street curb perpendicular to the POE. The width of the sidewalk should also be provided. Curb line references should always be used for buildings that span the entire block. In addition to the above POE external descriptions, the POE should be shown on an architectural site plan of the building. The site plan should show any vaults that exist as well as the location of the meter room within the building.

In summary, the building, property, and curb lines are important linear references for the POE to be accurately located. The nearest, clearly visible, fixed reference point to the POE should be utilized for this purpose.

The **POE Determination for New Services** site drawing may be **faxed, mailed, or e-mailed** to:

Con Edison  
Steam Services  
4 Irving Place, 7<sup>th</sup> Floor  
New York, NY 10003  
Tel. 1-212-460-2011  
Fax. 1-212-473-2538  
E-mail: [carinic@coned.com](mailto:carinic@coned.com)  
[www.conEd.com/steam](http://www.conEd.com/steam)



Specific Conditions

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**Please have this form signed and sealed by a professional engineer (P.E.) or registered architect (R.A.)**

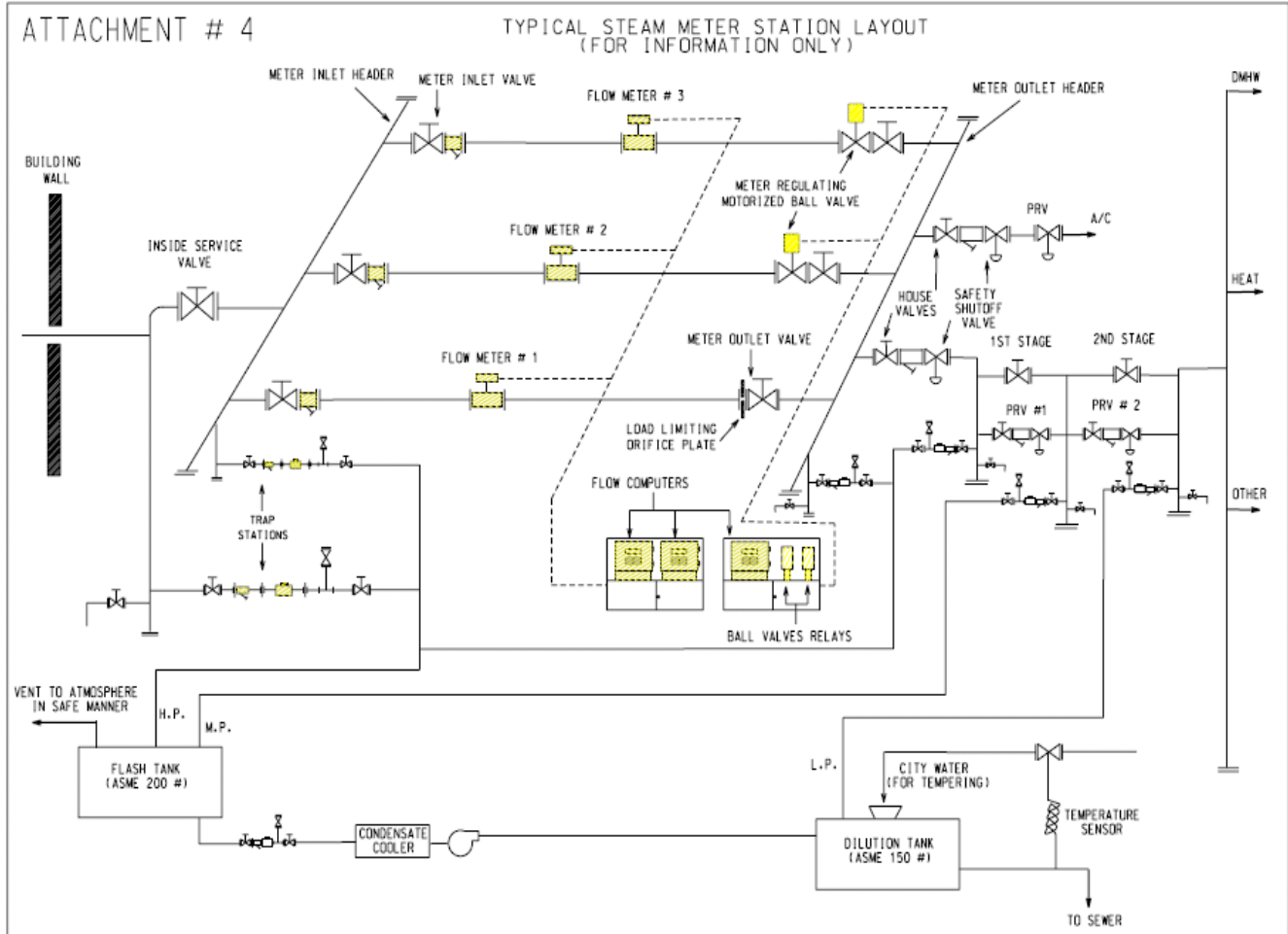
Signed: \_\_\_\_\_

February 2014

ATTACHMENT #4, STEAM METER STATION

For Reference and Informational Purposes Only

The meter station and h.p. piping system depicted may not reflect actual installation inside Customer's building



ATTACHMENT #5, BACKFLOW PREVENTION INSTRUMENTATION DIAGRAM  
For Reference and Informational Purposes Only  
The meter station and h.p. piping system depicted may not reflect actual installation inside Customer's building

