

**TOWN OF TRUMBULL, CONNECTICUT
BOARD OF EDUCATION**

REQUEST FOR QUOTATION

INSTALLATION OF GAS LINES AND GAS TRAINS AT FOUR SCHOOLS

BID NUMBER: 5917 DUE: JANUARY 4, 2012 @ 2:00PM

The Town of Trumbull, Connecticut (hereinafter referred to as Town), through the Office of the Purchasing Agent, will accept sealed Quotation for the installation of Gas Lines and Gas Trains at four different schools for the Trumbull Board of Education in accordance with the enclosed specifications.

1. PREPARATION OF PROPOSALS

Quotation shall be submitted by using the enclosed BID PROPOSAL FORM that accompanies this request. Submit one (1) ORIGINAL and one (1) EXACT COPY. Bidders should submit Quotation in a clear, concise and legible manner to permit proper evaluation of responsive Quotation.

Bidders may also submit, under separate cover with their proposal, any samples of reports and documents that are necessary to meet the requirements of this bid request.

2. BID SUBMISSION

a) Quotation are to be submitted in DUPLICATE and sealed in an envelope clearly marked and addressed as follows:

Purchasing Agent – Bid 5917; Due: 1/4/12
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

b) Please be advised that the person signing the formal proposal must be authorized by your organization to contractually bind your firm with regard to prices and related contractual obligations for the delivery period requested.

c) No oral, telephonic, or faxed proposals will be considered. Corrections, deletions, or additions to the Quotation may be made by wire, provided such wires are received in correct and comprehensive form prior to the opening time of Quotation, and confirmed by letter. No telephone corrections, deletions, or additions will be accepted. The Town reserves the right to reject any or all Quotation, and to waive any or all formalities in connection therewith.

3. BID TIME

a) Quotation shall be received at the office of the Purchasing Agent, Town Hall, prior to the advertised hour of opening, at which time all proposals will be publicly opened and read aloud.

b) A bidder may withdraw a proposal at any time prior to the above scheduled date and time. Any bid received after the above scheduled date and time shall not be considered or opened.

4. TOWN OPTIONS

a) The Town reserves the right to reject any or all Quotation and to waive any requirements, irregularities, technical defects or service therein when it is deemed to be in the best interest of the Town.

b) If your proposal does not meet or better the required specifications on all points, which must be outlined in a letter, otherwise it will be presumed that a proposal is in accordance with the required specifications.

c) The Town of Trumbull-Board of Education reserves the exclusive right to determine whether or not a proposal meets or exceeds the stated specifications.

d) **The BOE may decide to perform the work at all or some of the locations listed based upon the availability of funds.**

5. TAXES

All purchases made by the Town, and associated with the award of this requirement shall be tax exempt. Any taxes must not be included in bid prices. A Town Tax Exemption Certificate shall be furnished upon request.

6. INQUIRIES

a) All inquiries regarding this request shall be answered up to **January 30, 2011 at 12:00 PM** after which time no additional questions will be accepted. To ensure consistent interpretation of certain items, answers to questions

- the Town deems to be in the interest of all bidders will be made available in writing or by Fax as appropriate to all bidders. Inquiries of a technical nature may be directed to Stephen Kennedy (203-452-4306) Plant Operations, Trumbull Board of Education KennedyS@trumbullps.org. All other questions may be directed to Robert J. Chimini, Purchasing Agent (203.452.5042) rchimini@trumbull-ct.org.
- b) Additionally, after proposals are received, the Town reserves the right to communicate with any or all of the bidders to clarify the provisions of Proposals. The Town further reserves the right to request additional information from any bidder at any time after proposals are opened.
- c) It is the sole responsibility of the responding firm to verify any addendums that may have been issued relating to this request prior to submission of a proposal. Failure to submit a bid or proposal that does not address any changes or addendums may result in a disqualification of a bid submission.

7. **AWARD AND AUTHORITY**

The Town Purchasing Agent or Board of Education will issue notification of award in writing.

8. **PRICING**

All prices quoted are to be firm for a period of ninety (90) days following bid opening. **Special Consideration will be given to responses that can expedite the work.** The Town is always interested in any and all cost reduction opportunities.

9. **ASSIGNMENT OF RIGHTS, TITLES, AND INTERESTS**

Any assignment or subcontracting by a bidder, vendor, or contractor for work to be performed, or goods and/or services to be provided, in whole or in part, and any other interest in conjunction with Town procurement shall not be permitted without the express written consent of the Town of Trumbull.

10. **HOLD HARMLESS CLAUSE**

Bidder agrees to indemnify, hold harmless and defend the Town from and against any and all liability for loss, damage or expense which the Town may suffer or for which the Town may be held liable by reason of injury, including death, to any person or damage to any property arising out of or in any manner connected with the operations to be performed under an agreement with the Town, whether or not due in whole or in part of any act, omission or negligence of the Town or any of his representatives or employees.

11. **WORK REGULATIONS AND STANDARDS**

All work activities performed in association with this request must be performed and completed for the Town in accordance with current Federal State and Local regulations. All services performed shall also conform to the latest OSHA standards and/or regulations. Additional regulations and/or standards as listed in the specifications shall apply.

12. **WARRANTIES**

A copy of all applicable warranties must be submitted in full detail.

13. **CONFLICT OF INTEREST**

No purchase shall be made from nor shall services (other than services as an officer, agent, or employee of the Town) be secured from any officer or employee of the Town, or from any partnership or corporation in which such officer or employee is a partner or officer, or holds a substantial interest, unless such relationship and the fact that such purchase is contemplated shall be made known in writing to the agency making such purchase, and notice thereof posted, for at least five (5) days before such purchase be made, in the office of the agency making such purchase and in a public place in the Trumbull Town Hall.

14. **DELIVERY**

Installation shall be scheduled with the BOE Plant Operations Department. All work must be done in a manner that will not interfere with student work or the safety of the building occupants. All bidders should include the cost of any work that may be disruptive to the school and may need to be performed off-hours (weekends, evening).

15. **INSURANCE**

The successful bidder shall provide the Town Purchasing Agent with a Certificate of Insurance before work commences. The Town shall be named as an additional insured with an Insurance Company licensed to write such insurance in Connecticut, against the following risks and in not less than the following amounts:

- Worker's Compensation
- Contractor's Public Liability and Property Damage
- Automobile Insurance

General Liability	Each Person	Each Occurrence	Aggregate
Bodily Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage Liability	\$1,000,000	\$1,000,000	\$1,000,000
Personal Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Comprehensive Automobile Liability			
Bodily Injury	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage		\$1,000,000	\$1,000,000

The insurance policy must contain the additional provision wherein the company agrees that fifteen (15) days prior to termination, expiration, cancellation or reduction of the insurance afforded by this policy with respect to the contract involved, written notice will be served by registered mail to the Town.

In the event of cancellation, the contractor will cease all operations on or before the effective date of said cancellation and shall not commence work again until he has obtained replacement insurance and has delivered a Certificate of Insurance to the BOE Plant Operations Office.

18. **SPECIFICATIONS –**

- a) Each Bidder will be held responsible to have studied the Specifications, visit the sites (if necessary), regarding the proposed work, satisfied itself regarding all existing conditions and measurements, and to have included in the proposal an amount sufficient to cover all work.
- b) Should any Bidder find discrepancies in the Specifications, or be in doubt as to the exact meaning, notify the Town at once. The Town may then, at their option, issue Addenda clarifying same. The Town shall not be responsible for oral instructions or misinterpretations of Specifications.
- c) **The specifications are intended to provide an acceptable method and procedures for installing the gas lines/trains safely and to code. It will be left to the bidders to determine the most efficient route to bring the gas service from the utility termination (meter) location and the boiler room at each location.**
- d) **Final award will not be made until the Town Building officials have a chance to review the bid proposal plans for the work and approve them.**
- e) The Town reserves the right to issue Addenda at any time prior to the Bid Opening. All such Addenda become, upon issuance part of the Specification. Each Bidder shall cover such Addenda in the proposal and shall acknowledge receipt of same on the blank provided therefore. It is the bidders' responsibility to access the Town's website or contact the Town for any addenda that may be issued in conjunction with this bid.
- f) The Town reserves the right to require any or all Bidders to submit statements as to previous experience in performing comparable work; and as to financial and technical organizations and resources available for this work. The mere opening and reading aloud of a bid shall not constitute or imply the Town's acceptance of the suitability of a Bidder or the bid, nor shall possession of Drawings or Specifications constitute an invitation to bid. The competency and responsibility of Bidders as well as the number of working days required for completion will be considered in making an award.

19. **Site Visitation and Inspection pf Existing Conditions**

All bidders must visit the site and inspect the existing conditions. Site visits can be arranged by calling the BOE Plant Operations office at 203-452-4306.

20. **Site Visitation and Inspection pf Existing Conditions**

It is the sole responsibility of a bidder to verify any addendums that may have been issued relating to this request prior to submission of a proposal. Any notice of addendum shall be published on the Purchasing Department Website www.trumbull-ct.gov. Failure to submit a response that does not address any changes or addendums may result in a disqualification of a proposal submission.

**TOWN OF TRUMBULL, CONNECTICUT
BOARD OF EDUCATION**

INSTALLATION OF GAS LINES AND GAS TRAINS AT FOURSCHOOLS

BID NUMBER: 5917 DUE: JANUARY 4, 2012 @ 2:00PM

BID SPECIFICATIONS

NATURAL GAS PIPING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract/Bid.

SUMMARY

This section covers the complete natural gas system installation, from the burner (including boiler train) within the boiler rooms and to utility installed service point at each school location unless noted otherwise on Contract Drawings, including but not limited to piping, regulators, unions, valves, installation, testing and other normal parts that make the systems complete, operable, code compliant and acceptable to the authorities having jurisdiction.

This section covers the work standards and practices. **Each vendor shall determine the best means to get from the gas company termination to the burner at each location.** The winning bid proposal must be reviewed and approved by the BOE and Town's building department.

Bidders may request alternatives to sections of this specification to reduce cost or improve efficiency provided that the final installation is safe, meets code, and is approved by the Trumbull BOE and Town Building officials.

REFERENCE STANDARDS

The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1. 1996 NFPA 54 National Fuel Gas Code
2. Latest Edition of NFPA 54, National Fuel Gas Code.
3. Minimum Safety Standards for Natural Gas, 49 Code of Federal Regulations (CFR) Part 192.

QUALITY ASSURANCE

All materials, equipment and Work shall meet or exceed all applicable federal, state and local requirements and conform to codes and ordinances of authorities having jurisdiction.

Valves: Manufacturer's name, size, standards compliance and pressure rating clearly marked on outside of valve body.

Welding Materials and Procedures: Conform to ASME Code and applicable state labor regulations.

Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

Installer Qualifications: Company specializing in performing the Work of this Section with minimum three (3) years documented experience. Installation of natural gas systems shall be performed by individuals appropriately licensed by the State of CT. All installations shall be supervised by a licensed Master Plumber. All testing shall be performed by a licensed Journeyman or Master Plumber. Welders shall be certified in accordance with ASME Section 9.

SUBMITTALS

Product Data:

4. Provide code and standards compliance verification, manufacturer's product data and ratings on pipe materials, pipe fittings, regulators, valves and accessories.

Record Documents:

5. Submit test reports and inspection certification for all natural gas systems installed under this Contract as applicable.
6. Submit manufacturer's data reports for all material used in coating and wrapping.
7. Submit welder's certifications prior to any shop or field fabrication. Welder's certifications shall be current within six (6) months of submission.
8. Record actual locations of valves, regulators, etc. and prepare valve charts.
9. Provide full written description of manufacturer's warranty.

Operation and Maintenance Data:

10. Include installation instructions, spare parts lists, exploded assembly views manufacturer's recommended maintenance.

DELIVERY, STORAGE AND HANDLING

Materials may be stored onsite with the approval of the Board of Education Plant Operations department. All materials that are stored on site will be stored at the installer's risk.

Provide temporary protective coating on cast iron and steel valves.

Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work and isolating parts of completed system.

EXTRA MATERIALS (AS APPLICABLE)

Provide one (1) plug valve wrench for every ten (10) plug valves sized 2 inches and smaller, minimum of one. Provide each plug valve sized 2-1/2 inches and larger with a wrench incorporating a setscrew.

PART 2 - PRODUCTS

GENERAL

All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

Natural gas pressures shall not exceed five (5) pounds per square inch gauge on customer side of the meter.

Pipe joint compound shall be lead-free, non-toxic, non-hardening, insoluble in the presence of natural gas and compliant with ANSI/NSF 61 and Federal Specification TT-S-1732. Temperature service range of -15 degrees F to +400 degrees F, manufactured by Hercules "MegaLoc" or approved equal by Rectorseal, La-Co or Oatey.

PIPING

Buried Piping Outside of Building (as applicable):

1. Polyethylene, SDR-11, ASTM D2513 pipe and fittings with heat fusion socket joints.
2. Polyethylene pipe and fitting materials shall be compatible and by same manufacturer to ensure uniform melting and a proper bond. Fabricated fittings shall not be used.
3. Provide connection between buried plastic gas service piping and metallic riser in accordance with the gas code. Provide metallic riser consisting of HDPE fused coating on steel pipe for connection to above ground building distribution piping. Underground horizontal metallic portion of riser shall be at least twenty four inches in length before connecting to the plastic service pipe. An approved transition fitting or adaptor meeting design pressure rating and plastic pipe manufacturers recommendations shall be used where the plastic joins the metallic riser.

Above Ground Piping Outside of Building (Including roof):

4. Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with Class 150 black malleable iron threaded fittings conforming to ASME B16.3.
5. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.
6. Provide factory-applied, three-layer coating of epoxy, adhesive, and PE or field applied primer and epoxy paint coating on all pipe and fittings. Field applied coating is restricted to fittings and short sections of pipe necessarily stripped for threading or welding. Field coating shall be manufactured by Amercoat Type 240 or approved equal and applied in accordance with manufacturer's recommendations. Galvanizing shall not be considered adequate protection.

Above Ground Piping Exposed Inside of Building:

7. Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with Class 150 black malleable iron threaded fittings conforming to ASME B16.3.
8. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.

Above Ground Piping Concealed Inside of Building (Includes above all ceilings, within partitions, within chases, and all non-accessible locations):

9. Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with welded joints with Schedule 40 socket welded forged steel fittings conforming to ASME B16.11.

10. Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.

11. EXCEPTIONS:

- a. Threaded piping 1½ inches and smaller may be installed in lieu of welded provided that all piping is encased within steel sleeve vented to the exterior of the building. Sleeve piping shall be Schedule 10 black steel pipe conforming to ASTM A53, Grade A or B, electric resistance welded or seamless, with roll-grooved ends. Sleeve pipe couplings shall be Victaulic Style 75 with Grade T nitrile gasket. Sleeve fittings shall be Victaulic grooved malleable or steel. Sleeve piping and fittings must be two pipe sizes, but not less than 1 inch larger than encased gas piping.

UNDERGROUND WARNING TAPE (IF APPLICABLE)

Minimum 3 inch wide polyethylene detectable type marking tape. The tape shall be resistant to alkalis, acids and other destructive agents found in soil and impregnated with metal so that it can be readily recognized after burial by standard locating equipment.

12. Lamination bond of one (1) layer of Minimum 0.35 mils thick aluminum foil between two (2) layers of minimum 4.3 mils thick inert plastic film.
13. Minimum tensile strength: 63 LBS per 3 IN width.
14. Minimum elongation: 500 percent.
15. Provide continuous yellow with black letter printed message repeated every 16 to 36 inches warning of pipe buried below (e.g.: "CAUTION GAS LINE BURIED BELOW").
16. Manufactured by Reef Industries "Terra Tape" or approved equal.

VALVES

All valves shall be designed, manufactured and approved for natural gas service.

Line Shut-off Valves sizes 2 inches and smaller shall be iron body lubricated plug valve conforming to ASTM-A-126, U.L. Listed and A.G.A. Approved for natural gas service with threaded ends, wrench operation, rated for 200 WOG service pressure and -20 to 200 degrees F., manufactured by Resun Model R-1430 or Nordstrom Model 142.

Line Shut-off Valves sizes 2½ inches and larger shall be iron body lubricated plug valve conforming to ASTM-A-126, U.L. Listed and A.G.A. Approved for natural gas service with flanged ends, wrench operation, rated for 200 WOG service pressure and -20 to 200 degrees F., manufactured by Resun Model R-1431 or Nordstrom Model 143.

Appliance/Equipment Shut-off Valves at local connections sizes 2 inches and smaller shall be bronze body, full port ball or butterfly type, U.L. Listed and A.G.A. Approved for natural gas service with threaded ends, quarter turn lever handle operation, rated for 175 W.O.G. service pressure and 30 to 275 degrees F., manufactured by Nibco Model T585-70-UL, Model T580-70-UL or Milwaukee Model BB2-100.

Manual Emergency Shut-off Valves sizes 2 inches and smaller shall be bronze body, full port ball or butterfly type, U.L. Listed and A.G.A. Approved for natural gas service with threaded ends, quarter turn lever handle operation, rated for 175 W.O.G. service pressure and 30 to 275 degrees F., manufactured by Nibco Model T585-70-UL, Model T580-70-UL or Milwaukee Model BB2-100.

Automatic Emergency Shut-off Valves shall be U.L. Listed F.M. Approved for natural gas service, 2-way electrically tripped solenoid type; fail safe closed; manual reset; Type 1 solenoid enclosure; NBR seals and disc; stainless steel core tube and springs; copper coil; manufactured by ASCO Red Hat Series 8044 or approved equal.

PRESSURE REGULATORS

All pressure regulators shall be designed, manufactured and approved for natural gas service.

Pressure regulators for individual service lines shall be capable of reducing distribution line pressure to pressures required for users. Pressure relief shall be set at a lower pressure than would cause unsafe operation of any connected user. Regulator shall have a single port with orifice diameter no greater than that recommended by manufacturer for the maximum gas pressure at the regulator inlet. Regulator vent valve shall be of resilient materials designed to withstand flow conditions when pressed against valve port. Regulator shall be capable of limiting build-up of pressure under no-flow conditions to 50 percent or less of the discharge pressure maintained under flow conditions. Commercial grade diaphragm type with internal relief valve, vent valve, cast iron body, Buna-N diaphragm. Manufactured by Rockwell or Fisher.

Install pressure gauge adjacent to and downstream of each line pressure regulator.

UNIONS

Unions in 2 inches and smaller in ferrous lines shall be right and left hand nipple/coupling assembly, or ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends, 2-1/2 inches and larger shall be ground flange unions. Companion flanges on lines at various items of equipment, machines and pieces of apparatus may serve as unions to permit disconnection of piping.

Unions connecting ferrous pipe to copper or brass pipe shall be dielectric type.

Above grade flexible stainless steel appliance/equipment connectors shall conform with AGA under the ANSI Z21.69 Standard. Hose shall be braided stainless steel with a polyolefin heat-shrink tubing with high flame-retardant qualities. Hose shall be equipped with malleable iron unions and spring loaded brass quick-link couplings. An easily accessible manual shut-off valve shall be installed ahead of all hose connections. Specify T&S Brass "Safe-T-Link" or approved equal.

FLANGES

All 150 lb. and 300 lb. ANSI flanges shall be domestically manufactured, weld neck forged carbon steel, conforming to ANSI B16.5 and ASTM A-181 Grade I or II or A-105-71. Slip on flanges shall not be used. Each fitting shall be stamped as specified by ANSI B16.9 and, in addition, shall have the laboratory control number stenciled on each fitting for ready reference as to physical properties and chemical composition of the material. Complete test reports may be required for any fitting selected at random. Flanges which have been machined, remarked, painted or otherwise produced domestically from imported forges will not be acceptable. Flanges shall have the manufacturer's trademark permanently identified in accordance with MSS SP-25. Contractor shall submit data for firm certifying compliance with these Specifications. Bolts used shall be carbon steel bolts with semi-finished hexagon nuts of American Standard Heavy dimensions. All thread rods will not be an acceptable for flange bolts. Bolts shall have a tensile strength of 60,000 psi and an elastic limit of 30,000 psi. Flat-faced flanges shall be required to match flanges on pumps, check valves, strainers, etc. Only one manufacturer of weld flanges will be approved for each project.

All flanges shall be gasketed. Contractor shall place gasket between flanges of flanged joints. Gaskets shall fit within the bolt circle on raised face flanges and shall be full face on flat face flanges. Gaskets shall be cut from 1/16 inch thick, non metallic, non asbestos gasket material suitable for operating temperatures from -150 degrees F to +75 degrees F, Klingersil C-4400, Manville Style 60 service sheet packing, or approved equal.

OCCUPIED AREA GAS PIPING

All natural gas piping running through occupied areas (classrooms, halls, etc.) shall be concealed above ceiling if possible. Any exposed piping shall be painted per BOE Plant Operations instruction.

PENETRATIONS - WATERPROOFING AND FIRE PROOFING

Provide at points where pipes pass through membrane waterproofed floors or walls.

Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.

PART 3 - EXECUTION

PREPARATION

Ream pipe ends and remove cutting burrs. Bevel plain end ferrous pipe.

Remove cutting oil, scale and dirt, on inside and outside of piping, before assembly.

EQUIPMENT CONNECTIONS

Provide specified connections, shutoff valves, regulators and unions at each boiler.

Provide and install union type connections at all equipment to permit removal of service piping.

Gas service connections shall have a diameter at least one pipe size larger than that of the inlet connection to the equipment as provided by the manufacturer and be of adequate size to provide the total input demand of the connected equipment.

Rigid metallic pipe and fittings shall be used at service connections to all stationary equipment.

INSTALLATION

Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

All installation shall be in accordance with manufacturer's published recommendations.

Provide support for, and connections to, natural gas service meter in accordance with requirements of the utility company.

Distribution piping shall be as short and as direct as practicable between the point of delivery and the outlets.

Install and support all polyethylene piping in accordance with manufacturer's recommendations. All heat fusion welds shall be performed by welders qualified to the manufacturer's procedures.

Polyethylene piping shall not be installed above ground.

All above ground gas piping shall be electrically continuous and bonded to electrical system ground conductor in accordance with NFPA 70.

Provide and install union type fittings at proper points to permit dismantling or removal of pipe. No unions will be required in welded lines except at equipment connections. Where union type fittings are necessary for piping dismantling purposes, right and left nipples and couplings shall be used. Flanges, ground-joint unions or approved flexible appliance connectors may be used at exposed fixture, appliance or equipment connections.

Provide dielectric isolation device where copper lines connect to ferrous lines or equipment, such as dielectric coupling or dielectric flange fitting.

Valves, regulators, flanges, union type fittings and similar appurtenances shall be accessible for operation and servicing and shall not be located above ceilings, within chases, walls/partitions, spaces utilized as return air plenums or non-accessible locations.

Route piping in orderly manner and maintain gradient. Install piping to conserve building space. Group piping whenever practical at common elevations.

Install piping to allow for expansion and Contraction without stressing pipe, joints, or connected equipment.

Make service connections at the top of the main, whenever the depth of the main is sufficient to allow top connections. When service connections cannot be made at the top of the main, they shall be made on the side of the main no lower than the horizontal midpoint of the gas main.

Close nipples, bushing and cross type fittings shall not be installed in any gas piping system.

Slope piping and arrange to drain at low points. Install drip/sediment traps at points where condensate and debris may collect. Locate drip/sediment traps where readily accessible for cleaning and emptying. Do not install where condensate would be subject to freezing. Construct drip/sediment traps using tee fitting with capped nipple connected to bottom outlet. Use minimum-length nipple of 3 pipe diameters, but not less than 4 inches long, and same size as connected pipe. Cap shall be screwed pattern, black, standard weight, malleable iron. Install with adequate space for removal of cap.

Install valves for shut off and to isolate equipment, parts of systems, or vertical risers. All valves shall be located such that servicing and operation is possible. All flanged valves shown in horizontal lines with the valve stem shall be positioned so that the valve stem is inclined one bolt hole above the horizontal position. Screw pattern valves placed in horizontal lines shall be installed with their valve stems inclined at an angle of a minimum of 30 degrees above the horizontal position. All valves must be true and straight at the time the system is tested and inspected for final acceptance. Valves shall be installed as nearly as possible to the locations indicated in the Contract Drawings. Any change in valve location must be so indicated on the Record Drawings.

Install line shut-off valve at each branch connection to riser. Branch line shut-off valves shall be automatic type where indicated on Drawings.

Provide adequate clearance for access to and operation of all valves.

Install valves with stems upright or horizontal, not inverted unless required otherwise by the valve manufacturer.

Pipe vents from gas pressure reducing valves and pipe casing sleeves to the exterior of the building and terminated with outlet turned down and capped with corrosion resistant insect screen. Vent terminations shall be at least seven feet above grade or pedestrian traffic and a minimum three (3) feet above or twenty five (25) feet horizontally from all air intakes or building openings.

Above ground horizontal natural gas and encasement piping shall be supported at intervals of no greater than 6 foot for 1/2 inch piping, 8 foot for 3/4 inch and 1 inch piping and 10 foot for 1-1/4 inches and larger piping. Vertical piping shall be supported at each floor level and at intervals as specified for horizontal piping.

Extension bars shall not be used for supporting gas or encasement piping. Gas or encasement piping shall not be used to support any other piping or component.

Identify piping and valves in accordance with Project Specification Section 20 05 53.

INSTALLATION OF WELDED PIPING

Welding of pipe in normally occupied buildings is prohibited. Off-Site welding is acceptable. Should welding be required in a normally occupied building for connecting to an existing welded system, approval must be obtained from the BOE Plant Operation's Department and comply with Owner's fire and life safety requirements. **All welding inside the building should be assumed to take place when school is not in session.**

Piping and fittings shall be welded and fabricated in accordance with ASME/ANSI the latest editions of Standard B32.1 for all systems from the Code for Pressure Piping. Machine beveling in shop is preferred. Field beveling may be done by flame cutting to recognized standards.

Ensure complete penetration of deposited metal with base metal. Provide filler metal suitable for use with base metal. Maintain inside of fittings free from globules of weld metal. All welded pipe joints shall be made by the fusion welding process, employing a metallic arc or gas welding process. All pipes shall have the ends beveled 37-½ inch degrees and all joints shall be aligned true before welding. Except as specified otherwise, all changes in direction, intersection of lines, reduction in pipe size and the like shall be made with factory-fabricated welding fittings. Mitering of pipe to form elbows, notching of straight runs to form tees, or any similar construction will not be permitted.

Align piping and equipment so that no part is offset more than 1/16 inch. Set all fittings and joints square and true and preserve alignment during welding operation. Use of alignment rods inside pipe is prohibited.

Contractor shall not permit any weld to project within the pipe so as to restrict it. Tack welds, if used, must be of the same material and made by the same procedure as the completed weld. Otherwise, remove tack welded during welding operation.

Do not split, bend, flatten or otherwise damage piping before, during or after installation.

Remove dirt, scale and other foreign matter from the inside of piping, by swabbing or flushing, prior to the connection of other piping sections, fittings, valves or equipment.

In no cases shall Schedule 40 pipe be welded with less than three passes including one stringer/root, one filler and one lacer. Schedule 80 pipe shall be welded with not less than four passes including one stringer/root, two filler and one lacer. In all cases, however, the weld must be filled before the cap weld is added.

Weld Testing:

1. All welds are subject to inspection, visual and/or x-ray, for compliance with Specifications. The Owner will at the Owner's option, provide employees or employ a testing laboratory for the purposes of performing said inspections and/or x-ray testing. Initial visual and x-ray inspections will be provided by the Owner. The Contractor shall be responsible for all labor, material and travel expenses involved in the re-inspection and retesting of any welds found to be unacceptable. In addition, the Contractor shall be responsible for the costs involved in any and all additional testing required or recommended by ASME/ANSI Standards B31.1 and B31.3 due to the discovery of poor, unacceptable or rejected welds.
2. Welds lacking penetration, containing excessive porosity or cracks, or are found to be unacceptable for any reason, must be removed and replaced with an original quality weld as specified herein. All qualifying tests, welding and stress relieving procedures shall, moreover, be in accord with Standard Qualification for Welding Procedures, Welders and Welding Operators, Appendix A, Section 6 of the Code, current edition.

TESTING

All natural gas systems shall be inspected, tested, purged and placed into operation in accordance with NFPA 54 and as required herein.

All natural gas piping systems shall be very carefully inspected, tested, purged and placed into operation by a Licensed Plumber. All pneumatic tests shall be witnessed, recorded and countersigned by the BOE plumber Anderson Inspector.

All necessary apparatus for conducting tests shall be furnished by the Contractor and comply with the requirements of NFPA 54.

All new rough-in distribution piping and affected portions of existing systems connected to, shall be subjected to a pneumatic test pressure utilizing clean, dry air and must be demonstrated to be absolutely tight when subjected to the pressures and time durations listed herein. All equipment and components designed for operating pressures of less than the test pressure shall not be connected to the piping system during test.

3. Systems on which the normal operating pressure is less than 0.5 pounds per square inch gauge (psig), the test pressure shall be 5.0 psig and the time interval shall be 30 minutes.
4. Systems on which the normal operating pressure is between 0.5 psig and 5.0 psig, the test pressure shall be 1.5 times the normal operating pressure or 5.0 psig, whichever is greater, and the time interval shall be 30 minutes.
5. Systems on which the normal operating pressure is 5.0 psig or greater, the test pressure shall be 1.5 times the normal operating pressure, and the time interval shall be one (1) hour.

After testing is complete, the entire gas system shall be purged with dry nitrogen to eliminate all air, debris and moisture from the piping before natural gas is introduced into the system.

After successful results of pressure test and purging have been completed, a leakage test shall be performed in accordance with NFPA 54 Appendix D.

Connect, inspect and purge gas utilization equipment, burner hook-ups, outlets, etc., and place into operation only after successful results of pressure test, leakage test and purging have been completed and accepted.

In all instances in which leaks are then found, they shall be eliminated in the manner designated by the Owner's duly authorized representative. Testing operations shall be repeated until gas-piping systems are absolutely tight at the pneumatic test pressures indicated above.

The Contractor shall make all arrangements to assure that Town Building Inspectors and the BOE plumber view the final test and that a certificate is provided from the Inspectors verifying that the installation meets requirements.

Pressure test gas piping sleeve system with clean, dry compressed air at 15 psig by temporarily sealing all openings between gas carrier pipe and sleeve and vent openings. Sleeve systems must be demonstrated to be absolutely tight when subjected to this pressure for a period of four hours.

DRAWINGS

Drawings of the gas train lay-out and the general location at each building are provided as part of this specification. Drawings are not to scale and all vendors are responsible for field verifying all locations and measurements.

SCHOOL ADDRESSES ARE AS FOLLOWS:

Booth Hill School, 545 Booth Hill Rd., Trumbull, CT

Daniels Farm School, 710 Daniels Farm Rd., Trumbull, CT

Jane Ryan School, 190 Park Lane, Trumbull, CT

Tashua School, 401 Stonehouse Rd., Trumbull, CT

SPECIAL NOTE REGRADING WORK ON ROOF:

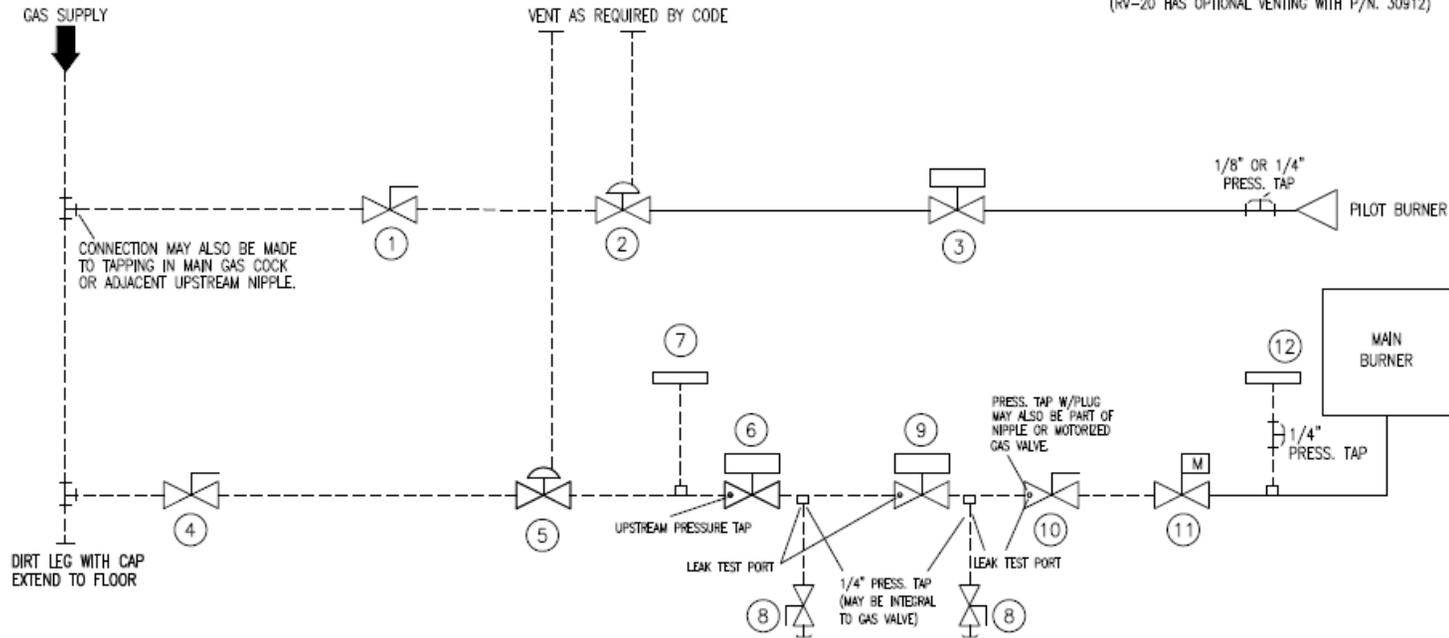
Special Care must be taken to prevent holed in the roof. A plan to protect the roof from welding activities, cutting, loading, and storage of materials must be approved by the BOE prior to any work.

Gas Train Lay-Out

EQUIPMENT SHOWN ON DIAGRAM IS ONLY PROVIDED AND MOUNTED BY POWER FLAME IF SPECIFICALLY CALLED FOR ON BURNER SPEC. SHEET.

CAUTION: ALL FIELD PIPED COMPONENTS MUST BE MOUNTED IN THE PROPER LOCATION AND PROPER DIRECTION OF GAS FLOW.

NOTE: WHEN PILOT GAS PRESS. REG. IS AGA CERTIFIED DEVICE WITH INTEGRAL LEAK LIMITING ORIFICE; SUCH AS RV-20, RV-10 AND RV-12, VENT LINE FOR PILOT GAS PRESS. REG. MAY NOT BE REQ'D. UNLESS SPEC'D. BY OTHER CODES. (NO PROVISION FOR EXTERNAL VENTING ON RV-10 & 12) (RV-20 HAS OPTIONAL VENTING WITH P/N. 30912)



————— FACTORY PIPED
 - - - - - FIELD PIPED

REFER TO SPECIFIC REGULATOR LITERATURE FOR RECOMMENDED STRAIGHT RUN OF PIPING BEFORE/AFTER REGULATOR AND SENSING LINE (IF APPLIC.)

ITEM	PART NUMBER	DESCRIPTION
1	980030	PILOT SHUTOFF COCK
2	302800	PILOT REGULATOR
3	202450	PILOT VALVE
4	M20436	MAIN GAS SHUTOFF COCK
5	300800	MAIN GAS PRESSURE REGULATOR
6	203065	AUX. GAS VALVE
7	161000	LOW GAS PRESS. SW.
8	980030	LEAK TEST COCK
9	194200 & 190900	MAIN GAS VALVE
10	M20436	MAIN GAS LEAK TEST COCK
11	M90025	BUTTERFLY VALVE
12	161100	HIGH GAS PRESS. SW.

Power Flame Incorporated

2001 SOUTH 21st STREET PHONE (620) 421-0480
 PARSONS, KANSAS 67357 FAX (620) 421-0948



DRAWN: SG APPVD: JT DATE: 6/1/11 PART: ACEN DWG: PDC-J063094

DRAWING PARAMETERS: N/A CODE: UL/CSD-1

TITLE: GAS PIPING FOR MODULATION BURNER

REVISION REV'D. DATE

PROPRIETARY AND CONFIDENTIAL NOTICE: THE CONTENTS OF THIS TEMPLATE CONSTITUTE PROPRIETARY AND CONFIDENTIAL INFORMATION OWNED BY POWER FLAME INCORPORATED. IT SHALL NOT BE REPRODUCED, IN WHOLE OR IN PART, AND SHALL NOT BE DISCLOSED TO ANYONE OUTSIDE POWER FLAME WITHOUT THE PRIOR EXPRESS APPROVAL OF POWER FLAME.

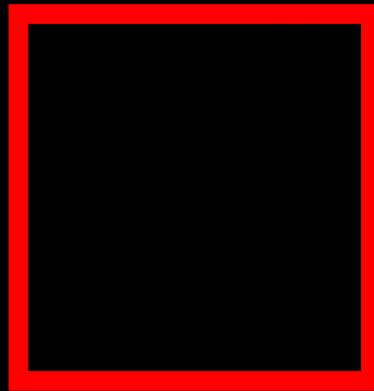
Booth Hill School



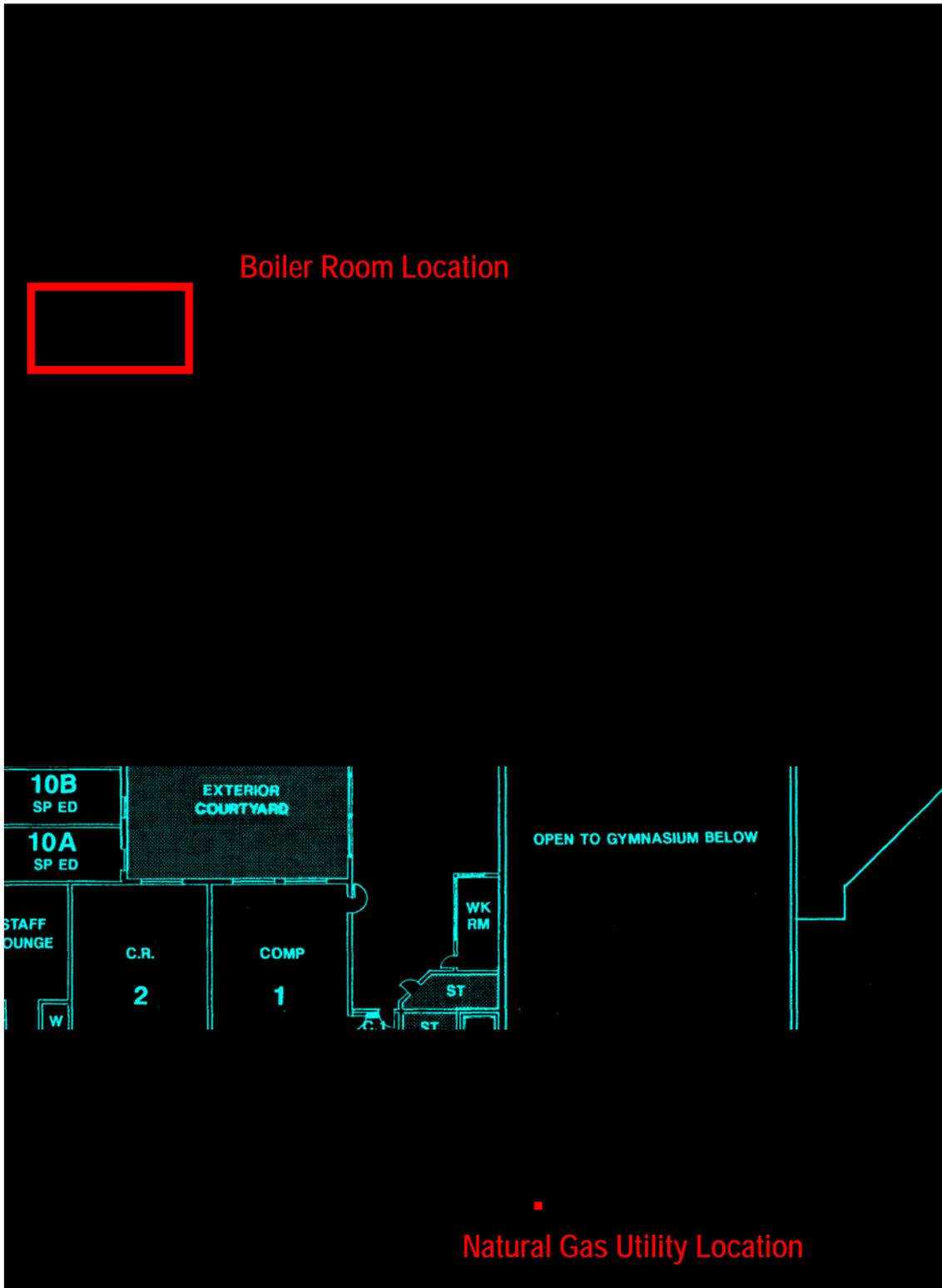


Diagrams not to scale

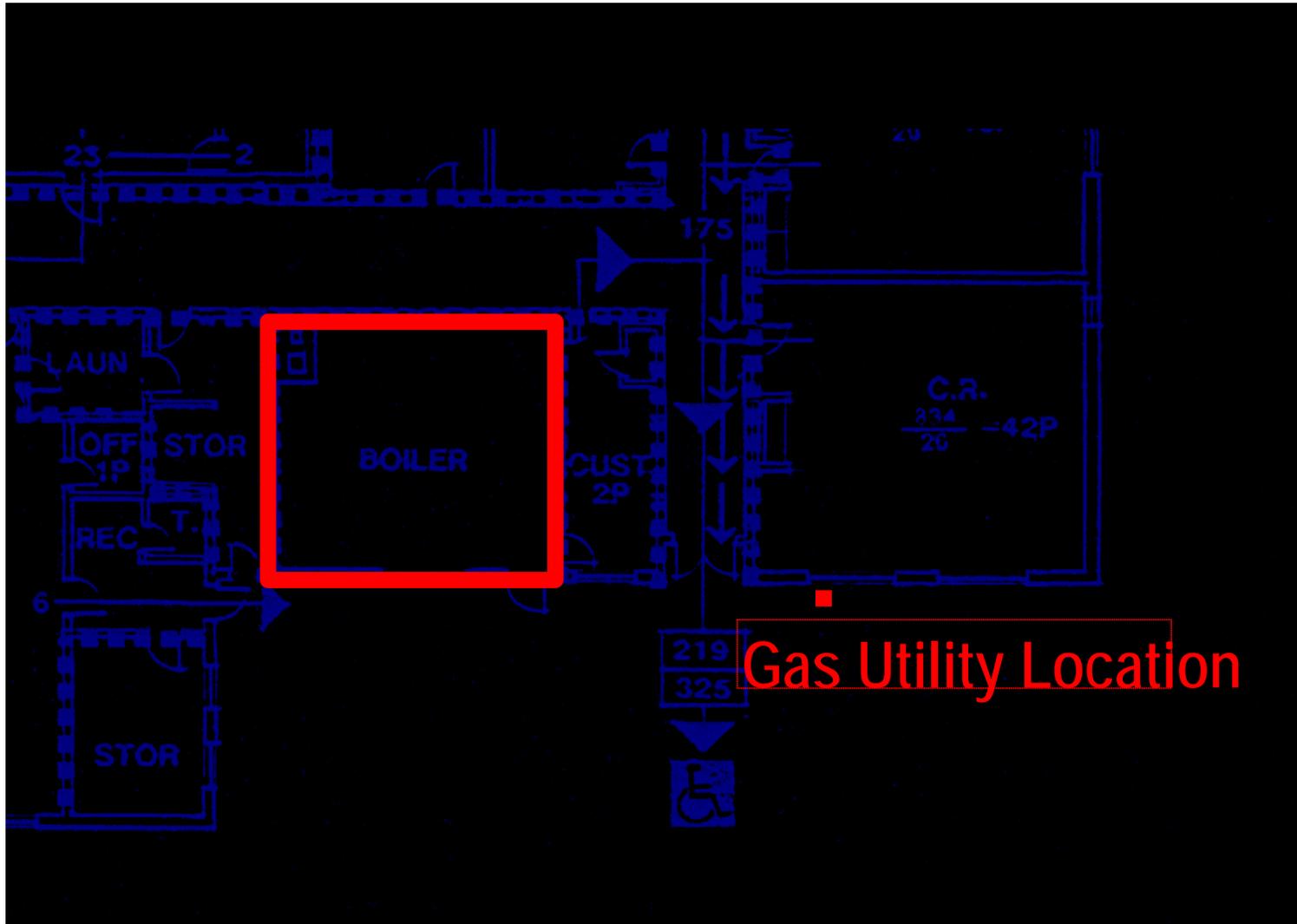
- **Natural Gas Location**



Jane Ryan School



TASHUA GAS UTILITY AND BOILER ROOM LOCATIONS



**TOWN OF TRUMBULL, CONNECTICUT
BOARD OF EDUCATION**

REQUEST FOR QUOTATION

INSTALLATION OF GAS LINES AND GAS TRAINS AT FOURSCHOOLS

BID NUMBER: 5917 DUE: JANUARY 4, 2012 @ 2:00PM

THE UNDERSIGNED AFFIRMS AND DECLARES that this proposal is executed with full knowledge and acceptance of the specifications, requirements, terms and conditions contained herein and with complete understanding and full compliance of system requirements and hereby submits this proposal for the request noted above and certifies that this proposal meets all the specifications and conditions requested herein. Any substitutions to the specifications requested are clearly and completely noted. Any alternate proposals are presented in a similar format to those requested and are attached herein. It is understood that the Town reserves the right to reject any or all proposals or waive any formalities in this request.

This proposal is submitted in full compliance with all Specifications and General Terms and Conditions except as noted below under exceptions.

TERMS OF PAYMENT _____

Work, as proposed above shall commence work on _____ calendar days after receipt of "Notice to Proceed" or receipt of Purchase Order and shall be completed within _____ calendar days thereafter

This quotation is to remain firm for _____ DAYS

TOTAL PROPOSED: Includes all labor, materials, and equipment as specified herein.

Location	Price for all labor and materials	Approx. # of days to complete job
Booth Hill	\$	
Daniels Farm	\$	
Jane Ryan	\$	
Tashua	\$	
TOTAL ALL	\$	

Company Name

By (Signature)

Address

Print Name

City, State, Zip code

Title

Phone #

FAX

Email