terms and conditions thereof.

Executed this 29th day of June, 1951.

CITY OF ROANOKE, ALABAMA
(Name of Sponsor)

By: K. L. Hooper

Title: Mayor

(Seal)

Attest:

Olin E. Sheppard

Title: City Clerk

Passed and approved this the 29th day of June, 1951.

K. L. Hooper
K. L. Hooper, Mayor
City of Roanoke, Alabama

Attest:
Olin E. Sheppard
Olin E. Sheppard, City Clerk
City of Roanoke, Alabama

ORDINANCE NO. 401

An ordinance to adopt a Gas Code of the City of Roanoke, Alabama.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ROANOKE, ALABAMA, as follows:

Section 1. That all those certain sections which are numbered consecutively from 1 to 32, both inclusive, and which are embraced within the annexed set of typewritten pages prepared by the City Council of the City of Roanoke, Alabama and entitled "Gas Code of The City of Roanoke, Alabama," which said sections in said set of typewritten pages are now before this Council at this regular meeting thereof, be, and said sections hereby are adopted and en-

acted as ordinances of the City of Roanoke, Alabama, and, collectively as the Gas Code of the City of Roanoke, Alabama and shall be effective and operative upon publication of this Ordinance, and shall be binding within the corporate limits of said City of Roanoke and within the police jurisdiction thereof.

Section 2. That it be and hereby, is, proclaimed that the code adopted by Section 1 hereof is on file with the City Clerk of the City of Roanoke, where the same may be inspected by the public, and that this proclamation and said code shall be made public by publication of this proclamation as a part of the publication of this ordinance.

Section 3. That as an additional manner of making said code public at least one hundred copies of this ordinance and of the Code adopted by Section 1 of this ordinance shall be printed and bound within appropriate covers and made available to the general public at the office of the City Clerk, provided that said City Clerk may charge therefor at a rate not exceeding the cost per volume to the City.

Section 4. That the City Clerk shall cause a true copy of this Ordinance to be published in a newspaper published and of general circulation in the City of Roanoke.

Read, adopted and approved this 13th August, 1951.

K. L. Hooper
K. L. Hooper, Mayor

Attest:

Olin E. Sheppard
Olin E. Sheppard, City Clerk

GAS CODE

of the

CITY OF ROANOKE, ALABAMA

ADMINISTRATIVE

Sec. 1: RULES GOVERNING GAS. No person, firm or corporation shall install, replace, repair, extend or alter any system of piping for the conveyance, distribution or use of illuminating or fuel gas, or construct, repair, replace, install, alter or maintain any gas burning devices connected to any such system of gas piping, in any building or structure in the City of Roanoke and its Police Jurisdiction, otherwise than in conformity with the provisions of this Code.

Sec. 2: GAS WORK TO CONFORM TO LAWS. It shall be unlawful for any person, firm or corporation to do, or cause to be done, any of the acts hereinafter prohibited, or fail, refuse or neglect to do any of the acts hereinafter to be done or performed.

Sec. 3: WRITTEN APPLICATION AND PERMIT REQUIRED FOR EACH PIECE OF WORK. No person, firm or corporation shall connect or cause to be connected any gas piping or appliance with any gas main or private connections without having first filed a written application (in the case of application for the installation of heating equipment which will aupply substantially all of the heating requirements of the premises a copy of the heat loss calculations must be attached to application) as hereinafter set forth, and having obtained written permits for such work as required in Section 4 within from the Gas Inspector. A separate permit must be obtained for the work on each

house, and for each separate piece of work on any description, including alterations, extensions and general repairs, except for minor repairs. It shall be the duty of the Gas Inspector to issue a permit to any person, firm or corporation who files with him a written application and complies with the hereinafter provisions of this Code.

Sec. 4: METHOD OF OBTAINING PERMITS. FEES THERE FOR.-- Application for permits required in Section 3 shall be made at the office of the City Clerk, and it shall be the duty of the said City Clerk to collect a fee of two dollars ($2.00) which fee shall be in full payment for the issuance of one permit and all inspections required of the work allowed by said permit.

Sec. 5: EXPIRATION OF PERMITS. All permits are good for a continuous performance of work named therein; permits shall automatically expire when work ceases for a period of ninety days, without good and reasonable cause for same; but will naturally expire upon completion of work for which it was issued.

Sec. 6: WRITTEN PLAN OR ABSTRACT REQUIRED BEFORE PERMIT IS ISSUED. Before issuing a permit a plan, abstract, or written explanation showing the name of the owner, occupant or agent of the building, and its exact location, the nature of the work and method of performing same shall be furnished the Gas Inspector and receive his approval before a permit is issued for the same, which plan, abstract or written explanation shall be kept on the job by the one doing work until the same is finished and accepted, or the number of said permit shall be painted on a board not less than 6 inches by 12 inches which shall

be nailed or otherwise posted in a conspicuous place on the job.

Sec. 7: APPLICATION TO BE FILED: CONTENTS OF. Any person, firm or corporation doing business as a gas fitter must conform to the following and foregoing rules and regulations of this Code. Before beginning any work, plans, or satisfactory written explanation and an application written in ink must be filed with the Gas Inspector, and must show the name of the owner or owners of the property or the person for whom the work is being done, the name or names of the gas fitters who are to do the work, the exact location of the premises, by the number of the lot and block, or house, street number or other good and sufficient description of the work, and the number and kind of fixtures. Said application must be on blanks which it shall be the duty of the City Clerk to keep in his office for the use of the person desiring same.

Sec. 8: ILLEGAL WORK TO BE REMEDIED ON NOTICE FROM INSPECTOR; PENALTIES. Whenever any gas construction, alteration or addition is made to the gas system within any building or residence, any existing dangerous conditions shall be brought to the attention of the owner by the prospective gas contractor prior to the inspection of the present work being done. Any person, firm or corporation engaged in the gas-fitting business whose work does not conform to the rules and regulations hereinafter set out, or whose workmanship or materials are of inferior quality, shall on notice from the Gas Inspector make the necessary changes at once in order to remedy the same;

if the work has not been so changed after ten days notice from the Gas Inspector the said Gas Inspector shall then refuse to issue any more permits until he, it or they shall have conformed to all rules and laws applying to said work or the gas Inspector shall issue a written order to disconnect the premises on which such work is installed from the gas main, without further notice. The expense of disconnecting from said gas main shall be charged to the person, firm or corporation who installed such illegal work. Any person, firm or corporation having control of such work, failing or refusing to make said changes shall be punished, on conviction, as provided in Section 586, Title 37, of the Code of Alabama of 1940. It shall be unlawful for the owner of or agent for any building or dwelling to permit any gas piping to remain connected with the gas main if the work has been improperly done. When any gas piping or any appliances become defective it shall be the duty of the owner of or agent for the building or dwelling to promptly cause the necessary repairs required for compliance with the provisions herein.

Sec. 9: GAS WORK DONE IN POLICE JURISDICTION TO CONFORM TO LAWS. Any person who having, his property, premises or building not within the corporate limits, but within the Police Jurisdiction of the City, desires, or is required by law, to use or connect with any gas main of the City, shall conform to the laws and ordinances of the City regulating the installation of gas fitting, the securing of permits for, and the inspection of same, and shall abide by the gas regulations of the City.

Sec. 10: ALLOWING ONE'S NAME, LICENSE OR BOND TO BE

USED TO OBTAIN PERMIT FRAUDULENTLY. No person, firm or corporation engaged in the business of gas fitting in the City of Roanoke, shall allow his, its or their names to be used by any other person, firm or corporation, directly or indirectly, to obtain a permit for the construction of any work under his, its or their name, certificate, license or bond, nor shall he, it or they make any misrepresentation or omissions in his, its or their returns.

Sec. 11: INFORMATION AS TO NAME, RESIDENCE AND PLACE OF BUSINESS TO BE FURNISHED BY GAS FITTERS. It shall be the duty of every person, firm or corporation desiring to engage in the gas fitting business in the City of Roanoke to have his, its or their full name, or names affixed to both the license and the bond, and to register his, or their full name or names, residence or residences, and place or places of business, in a book kept for that purpose by the Gas Inspector, and in case of removal, or change of location of any firm to have such change made in said license and bond, and in said register without delay.

Sec. 12: BOND REQUIRED OF GAS FITTERS FOR GAS INSTALLATIONS AND EXCAVATING. It shall be the duty of every gas fitter, and every person firm or corporation engaged in the business of gas fitting, to give a bond payable to the City of Roanoke in the sum of $2,500.00. Said bond shall be made by some suitable surety company duly authorized to do business in the State of Alabama, and said bond be approved by the city clerk and filed with him and conditioned that the person, firm or corporation

engaged in the gas fitting business will faithfully observe all the laws of the City of Roanoke pertaining to the gas fitting business, blasting and excavations and all rules and regulations established under the authority of this Code. All such gas fitting work done by such person, firm or corporation, or under his, its or their bond, shall be executed in a workmanlike manner; the City of Roanoke shall be indemnified and saved harmless from all claims arising from accidents and damages of any character whatsoever caused by the negligence of such person in doing said work or by any unfaithful or inadequate work done by the parties themselves, their agents or employes, and that he, it or they will maintain in a reasonable safe condition for a period of one year all ditches and excavations which may be opened by such servant or employee under such permit, and will replace the dirt and material excavated from such ditch in a proper and workmanlike manner and spread over such excavation new material of the same quality and kind with which the street is improved and maintain in a reasonably safe condition for a period of one year from the date of such excavation, where such excavation is made in an unpaved street or in a street paved with chert or macadam, and the word "street" as herein used shall apply to sidewalk, curb, gutter, and street paving.

Sec. 13: COUNCIL MAY REQUIRE BONDS TO BE RENEWED. The said bond shall be for the benefit of all persons injured or aggrieved by any violation of or neglect to observe the gas fitting laws of the City of Roanoke, or the rules and regulations established under the authority of laws and ordinances, and said bonds may be required by the

Council of theCity of Roanoke to be renewed at intervals of two years, or oftener, if in the judgment of the Council the securities shall be impaired, and at any time upon demand of the Council of the City of Roanoke, Alabama. Upon failure or refusal to comply with this section, the license of the said person, firm or corporation shall be ipsofacto revoked.

Sec. 14: PENALTY.-- That any person, firm or corporation who shall violate any of the provisions of this Code, shall, upon conviction, be punished within the limits and as provided in Section 586, Title 37 of the Code of Alabama of 1940. Each offense and each day's continuance of the offense shall constitute a separate and distinct offense.

DEFINITIONS

Sec. 15: DEFINITIONS OF TERMS USED IN THIS CODE.

INSPECTOR: When the word "Gas Inspector" is used, without prefix or suffix, it means "Chief Gas Inspector", charged with the enforcement of the provisions of this Gas Code and the rules therein contained.

MINOR REPAIRS AND CONNECTIONS: Minor adjustments to gas appliances and equipment which do not necessitate the installation (except connections as hereinafter provided), removal or relocation of an appliance, or the installation of any pipe.

APPURTENANCE: An accessory or adjunct to a gas appliance and intended to be used in connection with it.

CHIMNEY: The term "chimney" means that part of a building which contains one or more vertical or nearly

so flues.

DAMPER: A device installed in a vent pipe for the purpose of regulating the draft to the burner of the appliance.

DRAFT HOOD: A fitting or device placed in and made a part of the vent pipe from an appliance and which is designed to:

1. Permit the ready escape of the products of combustion in the event of no draft, a back draft or a stoppage beyond the draft hood.
2. Prevent a back draft from entering the appliance, and,
3. Neutralize the effect of stack action of the flue upon the operation of the appliance, and
4. Such device shall have free area at the relief outlet equal to or greater than the cross-sectional area of the flue pipe connecting thereto.

FLUE: A conduit or pipe, vertical or nearly so in-direction, designed to convey products of combustion to the outside atmosphere.

GAS APPLIANCE: A fixture or apparatus manufactured and designed to use natural, or any gas as a fuel medium for developing light, heat, or power, and shall include ranges, gas refrigerators, hot plates, space heaters, water heaters, steam and hot water boilers, ovens, furnaces, together with any accessory designed to be attached to any gas appliance, such as solid tops, pilot lights, governors, regulators, and safety devices; provided; however, that nothing herein, contained shall be construed to apply to tubing, appliances, appurtenances or devices used for

strictly experimental or scientific purposes.

HOUSE GAS PIPE: Any and all gas piping and fittings installed on any premises or in any building beyond the outlet side of the gas meter; that is, on the house side of the meter.

OUTSIDE GAS SERVICE PIPE: That part of the gas piping extending from the main to a point inside a structure or building where a straight-way stop cock or shutoff valve is located.

INSIDE SERVICE PIPE: That part of the gas piping extending from the Straight-Way stop-cock or shutoff to a meter bar or meter loop suitably located for a gas meter installation.

RATED INPUT: The Maximum amount of gas expressed in British Thermal Units per hour which a gas appliance is designed to burn completely, and which is set forth on any appliance meeting the requirements and specifications of the American Gas Association or other similarly recognized agency.

TUBING (flexible): A conduit to convey gas which depends for gas tightness on joint packing or on wall structure other than solid metal.

TUBING (semi-rigid): Conduit having semi-flexible metallic wall structure.

VENT COLLAR: The opening provided in a gas appliance, to which the vent is connected.

VENT PIPE: A pipe designed to convey the products of combustion from a gas appliance to a flue or chimney.

VERTICAL HEIGHT: The vertical distance between the

draft hood and the top of the chimney or flue to which said gas appliance is connected.

THERMOSTATIC SAFETY PILOT: A device which will automatically close off the main supply to the burner in the event of failure of burner ignition or gas supply.

GAS FITTING: Is the installation, repair, replacement and relocation of pipes, fixtures, appliances and other apparatus for a safe distribution of a gas supply for illuminating, fuel and heating purposes in any premises.

METAL TUBING: Any solid metal or alloy tubing as approved by A. G. A., or other similarly recognized agency.

Sec. 16: SERVICE PIPE AND STOPCOCKS. Each gas service connection brought into a structure shall be fitted with a straight-way stopcock or shutoff valve, placed in an accessible position immediately inside the wall all through which the connection enters.

All gas cocks on the outlet side of the meter shall be provided with suitable check or stop on the key, or shall plainly indicate whether the cock is closed or open.

All gas appliance of any kind shall have a suitable shutoff valve placed in the supply line as close as possible to the appliance.

Sec. 17: DEFECTS IN PIPE AND FITTINGS. Defects in pipe or fittings shall in no case be repaired. All such defective pipe or fitting shall, when located, be removed and replaced with perfect material.

Sec. 18: INSTALLATIONS TO BE DURABLE AND GAS TIGHT.

All piping installed for the distribution of illuminating or fuel gas shall be so constructed and installed as to be durable, substantial and gas tight.

Sec. 19: PIPING SUPPORTS, DRIPS, AND TRAPS. All such piping shall be so installed as to prevent an accumulation of condensation from interrupting the flow of gas, shall be free from sags, and shall be securely supported or fastened in place.

Horizontal pipes shall drain to the riser, and from the riser to the meter.

A drip, in which liquid condensate may collect and be removed, shall be provided at any point in a line of pipe where condensate would collect. Where condensation in house piping is excessive, a drip shall be provided at the outlet of the meter also, so installed as to constitute a trap wherein no accumulation of condensate will shut off the flow of gas, before it will run back into the meter. Drips shall not be located where the condensate is likely to freeze. A tee fitting with the bottom outlet plugged or capped, instead of an ell fitting, shall be used at the bottom of all riser, and drops, and shall in all cases be accessible. When unavoidable to form a trapped section, at the lowest point shall be provided a "Tee' with a proper length nipple (looking down) and a cap shall be provided to facilitate the removal of the condensation, scale, etc., and the size of the drip to use shall be in proportion to the amount of exposed section which drains into it.

Where offsets are necessary they shall be made with not more than 45 degree fittings.

Every gas cock or valve shall be readily accessible for operation or repair.

All branch outlet pipes shall be taken from the top or sides of running lines wherever possible, and in other cases a proper drip must be provided.

In buildings supplied by a master meter, or where the main service cooks are not ready accessible, an individual control cock shall be provided.

Bending of wrought iron or steel gas pipe shall not be done on house side of first valve, except in emergency cases in which cases approval of the Gas Inspector shall be obtained before such work is done.

No gas piping shall be so installed as to weaken the building structure. It shall be unlawful to notch floor joists on the under side of the joists for such piping, and if notched on the top side the depth of such notches shall not exceed one-fifth of the diameter or width of same. The same applies to all floor, ceiling joists or wall studs, nor shall any notching be done in such joists at a greater distance than fifteen (15) inches from the bearing of same joists. Above the basement pipe shall not be run under beams or floor joists where it will be covered with plastering, etc., but shall be run along the top of the beams or joists, so that it will be accessible by removing one or two boards from the floor.

All gas piping shall be installed in a workmanlike manner and in conformity with the rules and tables of length and size as herein provided. All gas piping shall be run as direct as possible to distributing points. When drops or openings are not in close proximity to studding

joists, a substantial wooden cross piece must be securely fastened to joists or studding and pipe secured to same by pipe straps.

In reducing the size of pipes a bushing shall not be used; the connection shall be made with a reducer.

On concealed piping, a swing joints made by use of combination of fittings shall not be used.

Where such pipe is laid in concrete it shall be coated with preservative paint.

Outlets from concealed piping shall extend at least one inch through the finished ceiling or wall and either the outlet fitting or the pipe shall be securely fastened to the wall or stud. Outlets shall be capped until fixtures are attached.

The use of unions or running threads on concealed piping is forbidden but right and left couplings shall be used.

In making up the joints, the threads of both male and female ends must be perfectly cleaned with an old tooth brush, steel wire brush or other suitable device.

Pipe straps or iron hooks shall not be used for fastening pipe larger than 2 inches. All suspended horizontal pipes over 2 inch shall be either adequately supported or suspended with heavy iron hangers not less than 3/8 of an inch in diameter, or 1/8 inch by one inch bank iron, placed at intervals of not less than ten feet apart on wrought iron pipe. When a horizontal line runs parallel with and against a wall it shall be supported by heavy iron clamps not less than one inch in width and 1/8 inch in thickness, firmly secured to the wall by lag

screws or expansion bolts to be placed at intervals of not more than ten feet for wrought iron or steel pipe.

No person shall lay, or cause to be laid, a gas service pipe in a trench excavated for a house sewer or water line, or within two feet thereof.

All foundation walls must be carefully cemented where gas pipe enters the building from the streets, but first the piping shall have a coating of protective paint where it passes through the wall.

No such piping shall be run on outside or vestibule walls, except when permitted by the Gas Inspector, and when so permitted shall be protected against sudden changes of temperature. Where gas burning devices are to be installed in overhanging kitchens or other rooms built beyond foundation walls, the supply piping for same shall br brought up inside the building proper, and from thence to the device in a manner subject to the approval of said Gas Inspector.

Any gas pipe to be run from one building to another shall be placed not less than one foot underground and installed in a manner to prevent an accumulation of condensation and shall be the next size larger than that specified in the Table in this Code.

Any gas piping installed in any building or residence shall conform to length and sizes in relation to the number of the appliances and cubic feet per hour demand of these appliances. Table A below presents data for computing sizes of pipe needed for large appliances such as central househeating plants, etc. This table giving the flow of gas through various pipe sizes is based on a

pressure drop equal to 0.3 inches of water between the meter and the appliance. Table A specifies natural gas having a specific gravity of 0.60.

TABLE A

CUBIC FEET OF GAS PER HOUR

0.3 In. Pressure drop and 0.60 sp. gr.

Natural Gas -- 1000 BTU per cubic foot.

Length of Pipe (ft)	1/2	3/4	1	1-1/4	1-1/2	2	3	4
15	76	172	345	750	1220	2480	6500	13880
30	52	120	241	535	850	1780	4700	9700
45	43	99	199	435	700	1475	3900	7900
60	38	86	173	380	610	1290	3450	6800
75		77	155	345	545	1120	3000	6000
90		70	141	310	490	1000	2700	5500
105		65	131	285	450	920	2450	5100
120			120	270	420	860	2300	4800
150			109	242	380	780	2090	4350
180			100	225	350	720	1950	4000
210			92	205	320	660	1780	3700
240				190	300	620	1680	3490
270				178	285	580	1580	3250
300				170	270	545	1490	3000

Table Showing Maximum Demand (Connected Load) Required for some Common Gas Appliances. (For accuracy, the manufacturer's BTU rating appearing on name plate should be used.)

APPLIANCE	BTU per hour	
Domestic Gas Range (four burner top)	62,500	
Domestic Gas Range (six burner top) with extra oven	107,500	
Gas Refrigerator	1,900--	3,900
Automatic Storage Water Heaters: Slow Recovery	2,500--	5,000
Quick Recovery	15,000--	70,000
Automatic Instantaneous Water Heaters:		
Capacity--4 gal. per min.	150,000	
6 gal. per min.	225,000	
8 gal. per min.	300,000	

Domestic Circulating Water Heater	25,000--	37,500
Warm Air Furnaces	40,000--	500,000
Gas Boilers	65,000--	5,000,000
Conversion Burner	80,000--	400,000
Floor Furnaces	25,000--	70,000
Domestic Room Heater--		
Radiant Heater--		
per single radiant	2,000	
per double radiant	4,000	
Gas Steam Radiator (per section)	2,000	
Domestic Hot Plate or Laundry Stove (per burner)	12,500	

Under no condition shall the line to the gas range be less than 3/4 inch.

Sizes of Gas Service Lines shall be as follows:

High Pressure System--for service to domestic appliances only, excluding central gas heating plants or their equivalent, service lines shall be at least 1" diameter.

METHODS OF CONNECTING APPLIANCES,

VENTS, ETC.

Sec. 20: Vents. All vent pipes running through a floor, ceiling, partition wall or any other nonfireproof material shall be properly run through a fireproof thimble. There shall be at least one inch air space between the vent pipe and the inside of the thimble. Such connections shall be properly flanged to obscure the air space from view in occupied rooms. Such metal vent pipes shall be at least six inches from any wall, partition, ceiling or other combustible material where they run parallel with same, or at least three inches from every such portion of a building in case the metal pipe is covered with three ply air-cell asbestos, except they may have only two (2) inches clearance from an exterior wall.

Type "B" flues approved by the National Board of Fire

Underwriters may be used with all gas appliances except gas incinerators. Joints of Type "B" flues shall be made up gas tight. Type "B" flues shall have a clearance of not less than one inch from combustible material plastered or non-plastered. Vents from floor furnaces, water heaters and space heaters shall have a clearance of not less than three inches for a distance of not less than three feet from the outlet of the draft hood measured along the center line of the vent pipe.

All flue vents from all heaters and other appliances shall be the same size as the manufacturer's vent collar and shall be installed as direct as possible to the outside atmosphere independent of other vents, or to a flue especially provided for this purpose. Gas furnaces and other gas appliances shall not be connected in the same vent with any other appliance unless equipped with safety shutoff.

No gas space heating apparatus consuming more than 20,000 BTU per hour shall be installed or operated without a suitable flue, unless other approved by the American Gas Association for non-venting and/or duct connection in any structure, and when given notice by the Gas Inspector or Fire Inspection Department or any other City Department having jurisdiction that any past installation is unsafe or a fire hazard, the owner or agent of such structure shall take immediate steps to have such installations comply with this Code within ten days of such written notice.

There shall be no damper placed in any vent pipe, chimney, or duct where it serves to carry the gases of combustion away from any heating device originally designed for gas operation.

The horizontal portion or portions of any vent pipe depending on natural draft shall not exceed fifteen (15) feet in length, unless the vertical height of the flue or chimney to which such vent pipe is connected is at least one and one-half ($1\frac{1}{2}$) times the length of the horizontal portion or portions of said vent. In no case, however, shall the horizontal portion or portions of such a vent pipe exceed the vertical height of any flue or chimney to which connected.

The internal area of any chimney or flue shall be not less than that of the largest vent connection inlet, plus fifty per cent of the area of all additional inlets connected thereto, provided, however, that in case of a rectangular flue or chimney, the total internal area of such flue or chimney shall be at least 110 per cent of the total area calculated.

Flue, chimneys or vents as herein specified and required shall NOT be required for the following appliances:

(a) Gas ranges, gas refrigerators and gas hot plates used in private kitchens when such ranges, refrigerators and hot plates meet the requirements and specifications of the American Gas Association or other similarly approved and recognized agency, and bear the seal of approval of such association or agency.

(b) Low recovery automatic gas water heaters which have a rated input of 7,500 BTU or less per hour, provided water heaters are equipped with an effective device, which in the event that the pilot flame is extinguished, will automatically shut off the gas supply to the main burner.

(c) Gas laundry stoves and hot plates used in private laundries.

(d) Gas hot plates, counter-type cooking appliances, ranges, ovens, boilers and other cooking and baking appliances used in food handling establishments when located under a hood which is connected with a flue affording proper venting.

(e) Gas hot plates and other counter type cooking appliances used in food handling establishments which are equipped with a ventilating or draft fan to discharge products of combustion into the outside air.

(f) Radiant type heaters located in fireplaces providing the face of the radiants does not extend beyond the face of the fireplace and other radiant type heaters consuming 20,000 BTU per hour or less.

(g) Portable stoves in which bottles gas, gasoline, kerosene, or alcohol is used as the sole means of producing heat.

(h) Electric stoves, ranges, heaters, and all other appliances and equipment in which electricity is used to produce heat.

Each vent flue shall extend at least twenty-four (24) inches above the roof, and shall be provided with a vent cap, and shall not terminate within twelve (12) feet of any window unless carried two (2) feet above same.

All appliances shall be located as near the chimney or flue as is practicable.

The vent pipe shall, so far as practicable, be so installed as to avoid sharp turns or other constructional features which would create excessive resistance to the flow of the gaseous products.

Any appliance so modified or altered as to no longer

conform to the specifications of the American Gas Association shall not be permitted to remain and the failure or refusal of the installer of any such illegally installed appliance to promptly remove same or bring same into conformity with such AGA specifications, shall have his, its or their license promptly revoked.

The gas supply line to the pilot or pilots shall be provided with a separate cock.

Appliances having more than one combustion chamber shall be provided with the individual safety pilots, the failure of any one of which will shut off the gas being supplied to the entire units.

In entering the flue or chimney, the vent connection shall be sufficiently above the extreme bottom of flue, to avoid stoppage by falling plaster or other foreign substances. Where more than one vent pipe is connected to a chimney flue, the connections shall be at different levels where practicable. Means shall be employed which will prevent the vent pipe from entering so far as to unduly restrict the space between its end and the opposite wall of the flue.

In general, the draft hood should be placed in a vertical position adjacent to the appliance.

Vents for appliances not herein otherwise specified shall be one (1) square inch in cross sectional area for each 7,500 BTU per hour input to appliance. In no case shall the vent from any appliance be less than three (3) inches in diameter.

The vent pipe shall maintain a uniform pitch between the appliance and the flue or chimney. For horizontal runs a pitch or rise of at least one-quarter (1/4) inch

to the foot (horizontal length) must be maintained.

All horizontal runs of vent pipe of ten feet or more in length shall be supported by proper metal hangers at intervals of not more than ten feet. Baling wire or other makeshift hangers will not be permitted. All joints in vents must be fastened by at least three (3) or more metal screws.

CONVERSION BURNERS: Within the appliance, all flues, fire ports, combustion chambers and connecting joints through which flue gases are conducted shall be thoroughly cleaned and examined for leaks and draft conditions, and made gas tight as shown by smoke bomb test or equivalent. All broken or cracked parts shall be replaced.

The chimney flue and flue pipe shall be examined and thoroughly cleaned and reconditioned, if necessary, so that they will freely conduct the flue gases to the outer air, Where flue pipes are rusted or burned out, same shall be replaced with new pipe.

The draft hood shall be located at a point not lower than the top of the highest flue outlet passage in the appliance, and, appliances of the revertible flue type shall have the draft hood at least one foot higher than the top of the highest flue passage. Proper provision shall be made to prevent the accumulation of gas in any part thereof.

The internal cross-sectional area of the flue pipe shall not be less than five (5) inches in diameter for central heating gas appliances, nor less than three (3) inches in diameter for space heating appliances and it shall not be larger than the next integral inch above the size given in the following table:

MINIMUM PERMISSABLE FLUE SIZES FOR

CONVERSION BURNERS AND SPACE

HEATING APPLIANCES

Input Rating BTU per hour	Area of Flue Outlet-sq. in.	Diameter of Flue Pipe-Inches
53,250	7.1	3
94,500	12.6	4
147,000	19.6	5
212,250	28.3	6
288,750	38.5	7
377,250	50.3	8
477,000	63.6	9

(Based on 1 sq. in. area per 7,500 BTU per hour input).

In cases where the outlet from the appliance is larger than the above indicated size, an orifice plate may be inserted, or a section of the flue pipe restricted to the size indicated.

The draft hood should ordinarily be located adjacent to the appliance. In cases where it appears desirable to place the draft hood at a distance from the appliance, the size of the restricted section may be modified according to the length and rise of the flue pipe.

The proportioned section at the flue outlet of the appliance eliminates the necessity of using an adjustable damper in the flue pipe.

Where dampers are an integral part of the boiler or furnace, they shall be removed.

The flue pipe shall be relocated, where necessary, to avoid sharp turns or other constructional features which would create excessive resistance to the flow of the flue gases.

Flue pipe shall be tightly connected to the chimney lining, so as to prevent infiltration of cold air.

No baffles shall be applied which will interfere with the proper combustion of the gas.

The heating surfaces shall be thoroughly cleaned before burners are installed.

When the ash-pit door is closed; the fuel door of the appliance shall be protected to relieve pressure due to puffs or backfire caused by delayed ignition, by installing proper door springs.

Burners shall consist of assembled and tested units and shall be accompanied by compcete and comprehensive installation and operation instructions. They shall be located according to the manufacturer's instructions and shall be so secured that they will not twist, slide or drop out of position. They shall be so installed as to be readily accessible for cleaning and inspection. They shall be installed so that no part of the flames impinge so as to cause incomplete combustion.

Air shutters shall be adjusted to produce a good flame at the prevailing gas pressure.

Secondary air openings shall be provided where secondary air is necessary.

Where an automatic secondary air control is provided the construction shall be such that, in case the controls fail in any way, either the gas will shut off or the secondary air door will remain open.

PILOTS: Wither a thermostatic pilot, so constructed and adjusted that no gas can flow through the main burner unless the pilot flame is burning, or some other similar type of safety device serving the same end shall be employed. The operation of this safety device shall

not depend on the closing of an electric circuit to shut off the main gas supply. Pilots shall be rigidly supported in such a manner that their position relative to the main burner or burners will be fixed. Also, they shall be so placed that they can be safety lighted and they shall be readily accessible for removal or cleaning.

Pilot lines shall be connected to vertical main gas supply lines or to the side or top of horizontal lines ahead of all controls including pressure regulators and appliance shut-off, and shall be provided with separate cock.

Thermostatic safety pilots shall be so adjusted that main gas supply will be shut off within three minutes after pilot flame has been extinguished under continuous operating conditions.

A manually operated approved shut-off valve or cock shall be installed at each appliance to shut-off the entire gas supply to the appliance, except the pilot, in case of emergency. Such valve or cock shall be so located that it is readily accessible and shall clearly indicate the "on" and "off" positions, or direction of rotation to open or close. Where a cock is provided the operating handle shall be securely attached to the plug in such a manner that it may not be readily removed.

ELECTRIC CONTROL VALVE: Electric control valves shall be installed according to the instructions furnished by the manufacturer, and all electrical connections shall be made in conformity with the Electrical Code of the City of Roanoke. Safety devices operated electrically

shall not depend upon the closing of a circuit to shut off the main gas supply. This requirement shall not be constructed as prohibiting the use of electrical regulating devices, provided the required safety devices are also installed. Controls shall be so connected that maximum interest safety provided by such controls will be attained.

The boiler or furnace shall be equipped with safety devices arranged to limit high steam pressure or water temperatures, as well as high air temperature in warm air furnaces. Each gas fired boiler for steam shall be equipped with a low water cut-off.

CONNECTION OF APPLIANCES USING HIGH PRESSURE AIR

When air under pressure is used in connection with the gas supply, effective means shall be provided to prevent the air from going back into the gas piping.

Sec. 21: LOCATION OF BURNERS. All gas appliances or fixtures of any kind shall be placed so that the burners are a minimum of three (3) feet below any ceiling or woodwork, unless proper approved fire protection is furnished by a shield approved by the Fire Inspector, in which case the distance shall be at least eighteen (18) inches.

Sec. 22: LOCATION OF APPLIANCES PROHIBITED. Water heaters shall not be installed in bathrooms and bedrooms. A water heater may not be replaced, which is existing under these conditions, but shall be relocated. No hot water heater, furnace or other gas appliance shall be placed in a closet or other portion of a building not having ventilation to outside, unless such closet

or room is ventilated with an opening of one square inch per 2,000 BTU per hour input to appliance near the floor and an opening of equal size in the ceiling if it opens to attic. If such closet or room is so located as to prevent venting into attic, an opening of as above mentioned shall be provided near the ceiling venting into open air or into a room which is ventilated to the outside, except bathrooms and bedrooms.

Sec. 23: HOT WATER HEATERS. A hose bibb must be provided at the bottom of all hot water storage tanks. Or, a compression stop or gate valve must be placed on sediment pipe to drain boiler and be run to outside of outer foundation wall and down to within 12 inches of the ground.

The hot water supply faucets, bibbs, etc., shall be on the left of every fixture as you face it.

Every hot water heater, tank and any other water supplied appliance or appurtenance shall be separatively valved on water supply except as herein specified for regular plumbing soil and waste fixtures. Water heaters shall not be installed in bathrooms or bedrooms. A water heater which has heretofore been installed in a bathroom or bedroom may not be replaced therein, but shall be relocated. No hot water heater, furnace or other gas appliance shall be placed in a closet or other portion of a building not having ventilation to a point outside the building unless such closet or room is ventilated with an opening of twelve square inches in or near the floor and an opening of at least twelve square inches in the

ceiling if it opens to a ventilated attic. If such closet or room is so located as to prevent venting into attic, an opening of twelve square inches shall be provided near the ceiling affording a vent into open air. Every hot storage tank shall be equipped with an approved automatic reseating temperature relief valve, installed either directly in the tank in a tapping, provided for this purpose not over 6 inches down from the top of the tank, or, in the hot water supply pipe leading from the top of the tank and within 6 inches of the tank. The temperature relief valve shall be adjusted to prevent the temperature of any water accumulating in the tank in excess of 212 degrees Fahrenheit. Blow-off openings from temperature and pressure relief valves shall not be less than 3/8 inch and shall be provided with a blow-off pipe of non-ferrous material. No shut-off valve shall be placed in any blow-off pipe. The outlet end shall be plain without threads. No used or second hand thermostat, relief valve or automatic device of any description shall be re-used or installed on a hot-water storage system unless such valve or device has been reconditioned by the original manufacturer or contractor, and so certified by a tag or other means and is of approved type. Whenever any existing domestic hot water storage tank and heater installation does not meet the above requirements, and which, on inspection, is determined to be dangerous, such tank and heater shall be reconstructed, replaced, or changed to conform to the above safety requirements. No swing or piston check valve shall be installed in the water supply pipes between a meter and the hot water storage tank. Any new installation or

replacement of hot water tank and heaters shall be inspected for shut-off and draw-off valves, flue connections, heat control, and for pressure and temperature relief valves. All water heaters hereinafter installed shall be approved by the American Gas Association and their stamp of approval shall be plainly marked on such heater. The temperature control valve, safety pilot, and thermostat shall be approved by the American Gas Association.

No hot water storage tank or automatic gas water heater, or electric water heater shall be installed which does not contain a proper antisiphon tube in same on the cold water inlet, if cold water enters top of same.

Sec. 24: CONNECTIONS AT APPLIANCES. Every gas appliance installed shall be adequately supported and so connected to the house or building gas service piping as to not exert undue strain on any connection, and shall be so located as to be readily accessible for operation and adjustment, and not constitute a fire hazard; nor shall any gas appliance be installed in a room in which the facilities for ventilation do not permit entry into the room of sufficient air for the complete combustion of gas being burned in such gas appliance.

Sec. 25: SETTING OF METERS. Any gas fitter, before installing an outside and inside gas service pipe or hourse gas piping or metal loop, shall consult the Inspector for the proper location of the said gas meter.

It shall be unlawful for any person, firm or

corporation excepting an employee of the Gas Department of the City to turn on or reconnect or disconnect gas service in or on any premises where and when gas service is or is not at the time being rendered.

Sec. 26: BACK DRAFT DIVERTER. An effective and approved back draft diverter shall be placed in the flue pipe as close as possible to the heating appliance if such a diverter is not provided with the appliance.

Sec. 27: MATERIALS. Gas pipe shall conform to the standard specifications of the American Society of Testing Materials for steel, wronght iron, cast-iron, copper, brass pipe and metallic tubing or for any other type of gas pipe approved by the Gas Inspector. All pressure vessels or pressure appliances must be built in accordance with the requirements of the Code of The American Society of Mechanical Engineers for such vessels and appliances, or for a working pressure of not less than 127 pounds per square inch and a testing pressure according to American Gas Association.

All gas pipe and fittings shall be of perfect material, clear and free from cutter burrs and defects in structure of threading and the Gas Inspector shall exercise the same right and duty to ascertain if gas piping has been properly reamed as follows: The Gas Inspector or his assistants may require a section of pipe or fittings to be removed so that he may see if same is properly reamed. This work shall be done at the expense of the person or persons installing such pipes. If such a section of pipes are found not to be properly

reamed then the Inspector shall require the whole system of piping to be removed until same has been properly reamed. This work shall be done at the expense of the person or persons installing such pipes.

All new gas appliances of any kind and all new safety devices used shall be those approved by the American Gas Association or other approved authorized agency.

Only pipe of good materials shall be installed for use on a hot water storage system or any other gas piping of any kind.

It shall hereafter be unlawful for any person, firm or corporation licensed to install such equipment, to install any used gas conversion burner, or any used appliance requiring a vent under this Code or safety control, or for the Gas Inspector to issue a permit authorizing him or them so to do, until such licensee shall have first submitted, with his application for such permit, a copy of the purchase order stating that a used burner or other equipment is to be installed and bearing a statement by the purchaser acknowledging that to be the case, together with a statement by said license that said conversion burner or other vented equipment has been reconditioned and will comply in every way with ordinance requirements as herein stated for new equipment, as to operation, safety standards and adjustments.

No gas pipe for any appliance shall be less than 3/8 inch in size.

Cast-iron pipe and fittings shall be used only underground or outside structures.

White lead, fitters' cement or wax shall not be used. Garlock compound or equal as are approved by the Gas Inspector may be used sparingly and applied to male threads only.

Stop-cocks shall be of heavy cast iron or brass bodies with brass plugs or cores.

The use of rubber hose, or any flexible metal, or other flexible material, for conducting gas to any gas appliance, is absolutely prohibited, excepting however, where gas is used in manufacturing processes or laboratories. The Gas Inspector shall permit the use of approved flexible gas tubing. Such approval of flexible gas tubing shall be based on the requirements and specifications of the American Gas Association, or other similarly approved recognized agency, and may be used for connecting gas appliances designed for portable use, radiantfire heaters, washing machines, ironers, clothes dryers, flat irons, dentists' torches, or other appliances, the location of which may be changed prior to or during operation, provided however, that such flexible gas tubing shall not exceed eight (8) feet in length; and where such tubing is used, an approved shut-off valve or gas cock shall be installed at the point where tubing is connected to the house gas piping, and no valve shall be permitted at the gas inlet to the appliance.

Metal tubing with connectors may be used for the

connection of ranges and refrigerators, provided both the tubing and connectors are certified by the American Gas Association or other similarly approved recognized agency.

It shall be unlawful for any person, firm or corporation to install or have installed any other gas heaters or appliances of any kind except those approved as herein provided and it shall be the duty of the Inspector to have such violators prosecuted as provided herein.

TESTS AND INSPECTIONS

Sec. 28: No gas piping shall be painted or covered in any way before inspection is made and the Gas Inspector has given his approval thereof.

After all piping is installed and all outlets capped, the gas fitter shall apply, in the presence of the Gas Inspector, an air pressure test equal to five pounds air pressure which shall be maintained for at least ten minutes. This shall constitute the "roughing-in test" and must be made before the meter is set and before any heaters or any appliances of any kind are connected to the gas piping. When this test is made all piping must be completely installed to the fixture or appliance connecting and no part of such piping shall be left not installed.

The final inspection shall not be made until all gas appliances are placed and properly connected and meter set, ready for operation, and all stop cocks to all appliances must be in place.

HEATING EQUIPMENT

Sec. 29: APPLIANCE PERFORMANCE. The concentration of oxygen in the flue products of a conversion burner installation shall, in no case be less than five per cent, nor more than eight per cent.

METHOD OF TEST, CONVERSION BURNERS.

The gas input rate shall be adjusted to within plus or minus five per cent of 1.5 times the calculated hourly BTU heat loss of the building in which it is installed but, in no case, to a valve in excess of five per cent above the maximum input rate specified by the manufacturer. The gas input rate shall be adjusted at the manifold pressure specified by the manufacturer. When the prevailing pressure is less than the manifold pressure specified, the gas rate shall be adjusted at the prevailing pressure. The appliance shall be allowed to operate until the stack temperature becomes stabilized, after which a sample of the flue products shall be taken at a point in the flue after the outlet of the appliance but ahead of the draft hood, and analyzed for carbon dioxide or oxygen.

RATING OF GAS DESIGNED EQUIPMENT

The gas input rate shall be adjusted to within plus or minus five per cent of the required hourly BTU input rating at the manifold pressure specified by the manufacturer. When the prevailing pressure is less than the manifold pressure specified, the gas rate shall be adjusted at the prevailing pressure.

FLOOR FURNACE INSTALLATIONS

Sec. 30: (a) Where the distance from the ground

level to the floor level at a floor furnace location is less than the depth of the furnace, a water proof pit shall be provided with the following minimum inside dimensions:

Twelve inches from the furnace to the sides of the pit on all sides except the control side where the clearance shall not be less than twenty-four (24) inches. There shall be a minimum clearance of twelve (12) inches from the bottom of the furnace to the bottom of the pit. The sides of the pit shall extend approximately four inches above the level of the ground surrounding the pit.

(b) Where the distance from the ground level to the floor joists at the floor furnace location is less than twenty-four inches, a water proof pit shall be provided with the following dimensions: Twenty-four (24) inches from the sides of the furnace to the sides of the pit except on the control side and the vent side. On the control, the minimum clearance to the side of the furnace to the side of the pit shall be thirty-six (36) inches, and on the vent side, twelve (12) inches. There shall be a minimum of twelve (12) inches from the bottom of the furnace to the bottom of the pit. The sides of the pit shall extend approximately four (4) inches above the level of the ground.

(c) Where the distance from the ground level to the floor joists at the floor furnace location is less than eighteen inches, a water proof pit as

specified in Section (b) shall be provided and there shall also be provided an access door at the floor furnace location from the floor to the water proof pit.

(d) No floor furnace may be installed unless equipped with an effective device, which in the event the pilot flame is extinguished, will automatically shut off the gas supply to all the main burners.

INSTRUCTIONS TO THE CUSTOMER

The customer shall be thoroughly instructed by the installer as to the proper and safe operation of the appliance before it is placed in continuous service.

In the absence of the customer, printed instructions, enclosed in an envelope labeled "Instructions to Customer" and attached to the main gas valve of the appliance by the Installer, shall be construed as having fulfilled the aforementioned requirements.

FINAL INSPECTION

Sec. 31: Whenever the final inspection of any installation has been rejected by the Gas Inspector, he shall immediately notify the owner to have the appliance or appliances disconnected from the house gas piping, or if the disconnection of "rejected" installation of appliance or appliances is not made, the Gas Inspector shall issue an order requiring the gas department to remove meter from said location and not to reinstall such meter until notified to do so by the Gas Inspector.

Whenever any existing domestic hot water storage tank and heater or any other gas appliance installation does not

meet with the requirements of this Code, and which, on inspection, is determined to be dangerous by the Gas Inspector and/or Fire Inspector, such heater or appliance shall be reconstructed, replaced, or changed to conform to the herein provided safety requirements, within ten days of such written notice, or such person, firm or corporation responsible shall be prosecuted as herein provided.

Any and all new installations or replacements of any gas heating appliance shall be inspected for shut-off and draw-off valves, flue connections, heat control and for pressure and temperature relief valves, and any other reasonable tests he deems advisable to see that the installation operates properly and safely as herein provided in this Code.

All requests for inspections shall be received not later than 9 a.m. on the day the inspection is desired, except in an emergency, in which cases the Gas Inspector shall be notified by noon of the same day. However, the Gas Inspector is subject to call 24 hours a day in case of an emergency breakdown.

Sec. 32: APPROVED APPLIANCES ONLY MAY BE INSTALLED. No gas burning device of any kind may be installed that does not have the approval of the American Gas Association or other approved authorized agency.

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Passed and Approved this 13th August, 1951.

K. L. Hooper
K. L. Hooper, Mayor
City of Roanoke, Alabama

Attest:

Olin E. Sheppard
Olin E. Sheppard, City Clerk
City of Roanoke, Alabama

I, Olin E. Sheppard, hereby certify that the above and foregoing written acceptance of the term and conditions of Ordinance No. 401, was passed and adopted by the Mayor and City Council of the City of Roanoke, Alabama, on the 13th day of August, 1951, and was herein recorded and was published in the Roanoke Leader, a newspaper of general circulation in the City of Roanoke, Alabama, on the 13th and 20th days of September, 1951.

Olin E. Sheppard
Clerk, City of Roanoke, Alabama

GRADE ORDINANCE.

NO. 402

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ROANOKE, ALABAMA, as follows:

An Ordinance to provide for and establish grades on a portion of the following Streets and Avenues in the City of Roanoke, Alabama, as follows: Willow Lane and Peachtree Streets; which said portion of said Streets and Avenues are as follows:

1. Willow Lane: Commencing on the Westerly side of Stewart Street and running thence in a curving direction Westerly to the Easterly or Northeasterly side of Price Street, and the