

GPI CH 1-4 Quiz 2024

Complete this quiz relating to NFPA54 2018, chapters 1-4

* Indicates required question

1. What addition of the NFPA54 codebook are we currently using? *

1 point

Mark only one oval.

2015

2018

2021

2025

2. How many chapters are in the 2018 NFPA54? *

1 point

Mark only one oval.

10

11

12

13

3. What is the maximum LP-gas pressure governed by the NFPA54 codebook? *

1 point

Mark only one oval.

2 PSig

20 PSig

50 PSig

100 PSig

4. What is the difference between "accessible" and "readily accessible"? * 1 point

5. What information is covered in Chapter 2? * 1 point

Mark only one oval.

- Definitions
- Administration
- Referenced Publications
- General Information

6. An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. * 1 point

Mark only one oval.

- Authority Having Jurisdiction (AHJ)
- Inspector
- State Fire Marshall
- Fuel Gas Supplier

7. Nonhardening materials used on pipe threads to ensure a seal. * 1 point

8. Gas pipe that conveys from a supply line to the appliance. *

1 point

Mark only one oval.

- Main Line
- Branch Line
- Gas Leg
- P.O.D.

9. What is topic is covered by the NFPA58 codebook? *

1 point

10. "Potential Ignition Sources" is covered by: *

1 point

Mark only one oval.

- 4.2.1
- 4.3.1
- 4.3.2.2
- 4.4

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GPI CH 5 Quiz 2024

Complete this quiz pertaining to chapter 5 in the NFPA54 2018 codebook

* Indicates required question

1. What is covered in this chapter? * 1 point

2. Where can you find the provision for the location of the Point of Delivery? * 1 point

Mark only one oval.

- 5.2
- 5.4.4
- 5.6.3.1
- 5.6.6

3. When can Cast Iron piping be used in a gas system? * 1 point

4. What type of piping can be used to vent a regulator? * 1 point

Mark only one oval.

- PVC
- CSST
- Cast Iron
- Polyethylene

5. Where can you find information on damaged threads? *

1 point

Mark only one oval.

5.6.6.2

5.6.5

5.5.5

5.5.3

6. How many threads are to be cut on 2" pipe? *

1 point

Mark only one oval.

10

11

12

13

7. What methods shall be used to connect pipe lighter than Sch 40? *

1 point

Mark only one oval.

press connection

flanges

brazing

welding

All of the above

8. What do gas meters need to be protected from? (5.7.5) *

1 point

9. Gas meters shall be located in ventilated spaces readily accessible for examination, reading, replacement, or necessary maintenance. * 1 point

Mark only one oval.

True

False

10. Information about Gas Pressure Regulators can be found in what section? * 1 point

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GPI CH 7 Quiz 2024

Answer these question for chapter 7 of the NFPA54 2018 codebook

* Indicates required question

1. What is covered in Chapter 7 of the NFPA54 2018 codebook? * 1 point

2. Trenches shall be graded so that the pipe has a firm, substantially continuous bearing on the bottom of the trench. * 1 point

Mark only one oval.

True

False

3. What is the minimum gauge for tracer wire? * 1 point

Mark only one oval.

10 AWG

12 AWG

14 AWG

18 AWG

4. What must be done to steel piping installed outside after inspection to protect it? * 1 point

5. What is the maximum hanger spacing for 3/4" steel piping? *

1 point

Mark only one oval.

6'

8'

10'

12'

6. How is the hanger spacing for CSST piping determined? *

1 point

Mark only one oval.

AHJ

Manufactures I and O manual

Gas supplier

Installers decision

7. What section can you find information on "Piping in Vertical Chases" *

1 point

Mark only one oval.

7.1

7.2

7.3

7.4

8. What is the difference between a drip leg and sediment trap? *

1 point

9. 7.8.2.1 pertains to what? *

1 point

Mark only one oval.

- Cap All Outlets
- Prohibited Devices
- Accessibility of Gas Valves
- Optional Components

10. CSST bonding jumpers must be at least 6 AWG copper wire or an equivalent. *

1 point

Mark only one oval.

- True
- False

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GPI Mec 100-600 Quiz 2024

Complete the quiz based on the Mec 100-600

* Indicates required question

1. What NH city is the Office of Professional Licensure and Certification located in? * 1 point

2. What is the 3rd tier license of Fuel Gas licensing? * 1 point

3. How many members make up the Mechanical Licensing Board? * 1 point

4. The minimum age of a Gas Licensing Trainee? * 1 point

5. How many years from the date of issue is a fuel gas license valid for? * 1 point

6. How many hours are required to maintain the fuel gas licensing during the 2 year licensing cycle? * 1 point

7. What is the INITIAL Fuel Gas Fitting licensing fee? * 1 point

8. What is the RENEWAL fee for a Mechanical Business Entity license 1-5 employees? * 1 point

9. Any condition, operating feature, or combination of that when energized presents a hazard that could cause property damage through fire or explosion, health or life safety hazards to the occupants, residents, or property owners... is called what? * 1 point

10. What section of Mec outlines "Misconduct"? * 1 point

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GPI Principles and Properties Quiz 2024

Complete the quiz pertaining to the principles and properties of fuel gases.

* Indicates required question

1. The measure of the intensity or heat level of a substance. *

1 point

Mark only one oval.

- Thermodynamics
- Temperature
- BTUs
- Heat Transfer

2. What temperature is absolute zero in Fahrenheit? *

1 point

Mark only one oval.

- 350F
- 500F
- 126F
- 460F

3. The amount of heat required to raise the temperature of a pound of water 1 degree Fahrenheit.

* 1 point

4. How many BTUs is a birthday candle? *

1 point

Mark only one oval.

- 1
- 5
- 15
- 100

5. What is LP short for? *

1 point

6. What state is LP or Natural Gas in at the P.O.D. in the NFPA54? *

1 point

Mark only one oval.

- liquid
- vapor
- Solid

7. What are the 2 most common units of measurement for reading gas pressures? *

1 point

8. At what pressure does a relief valve on a LP storage tank vent? *

1 point

Mark only one oval.

- 312 PSI
- 200 PSI
- 75 PSI
- 483 PSI

9. Name one inert gas that is good for testing a piping system. *

1 point

10. Which fuel gas generally has a higher ignition point? *

1 point

Mark only one oval.

LP

Natural Gas

11. The specific gravity of LP is: *

1 point

Mark only one oval.

Heavier than air

Lighter than air

The same as air

12. The specific gravity of Natural gas is: *

1 point

Mark only one oval.

Heavier than air

Lighter than air

The same as air

13. ASP means *

1 point

Mark only one oval.

Available supply pressure

Average specific pressure

All supply parameters

Above specific pressure

14. What does P.O.D. mean? *

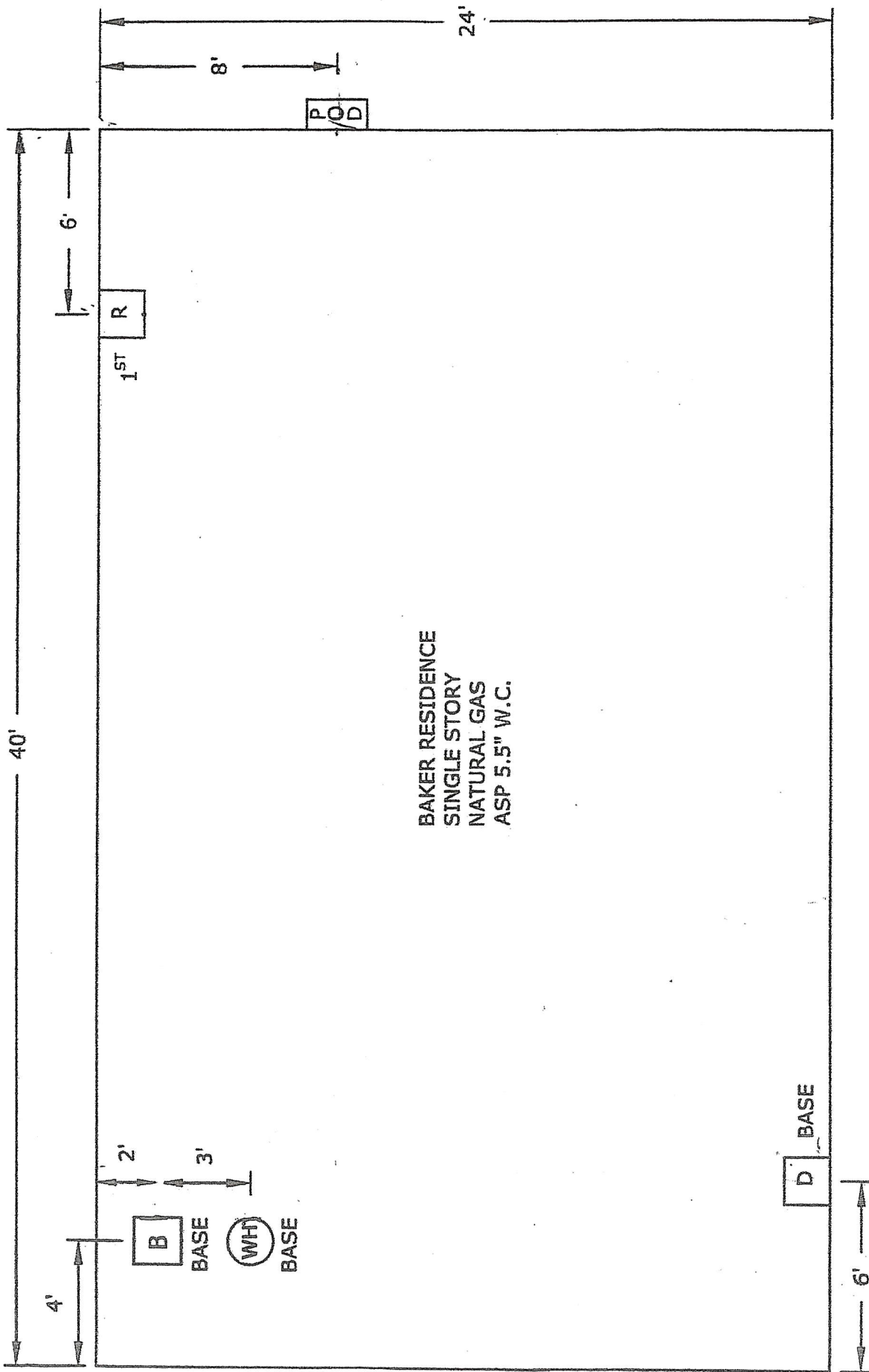
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15. Which fuel gas has a higher BTU per cubic foot? *

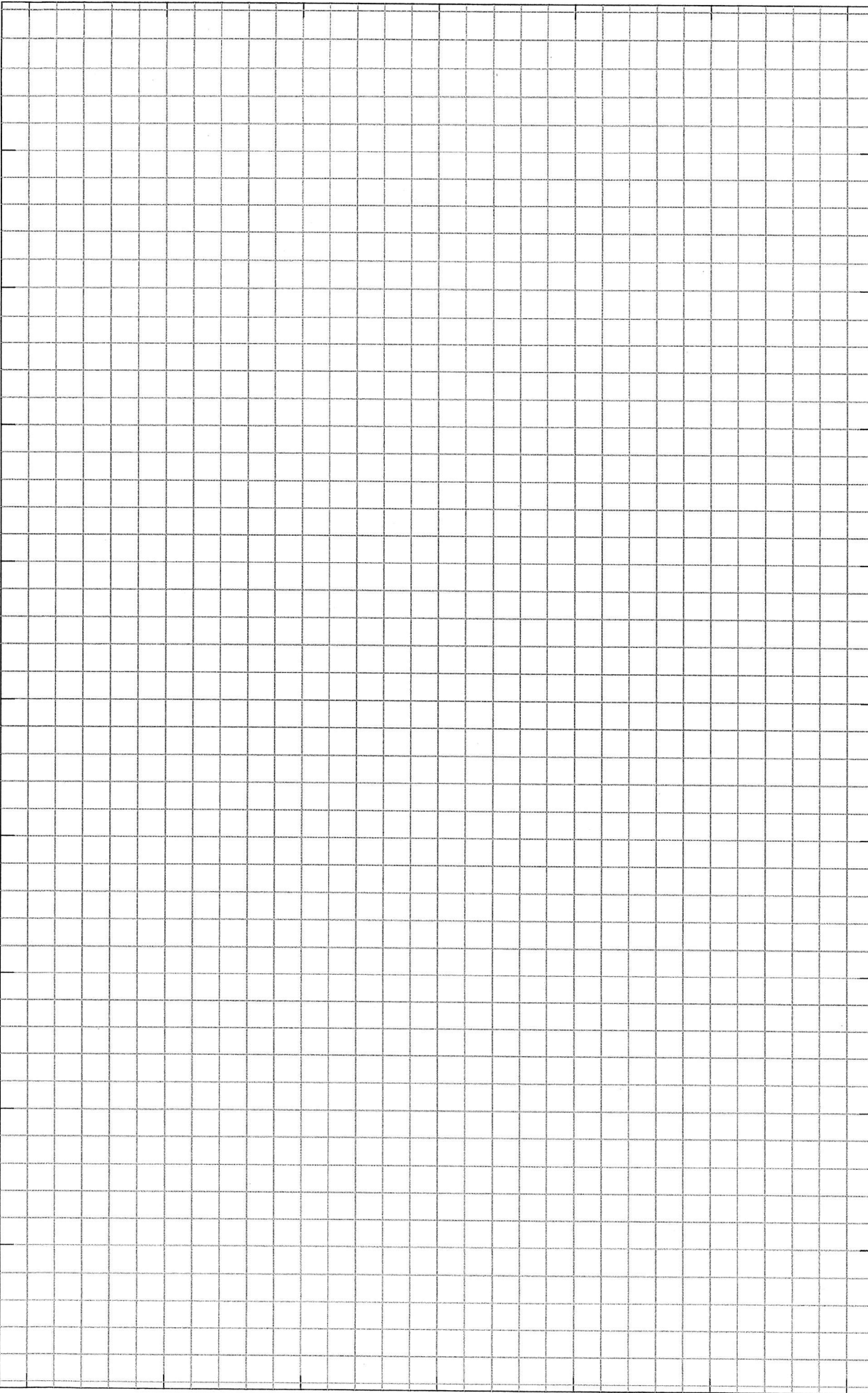
1 point

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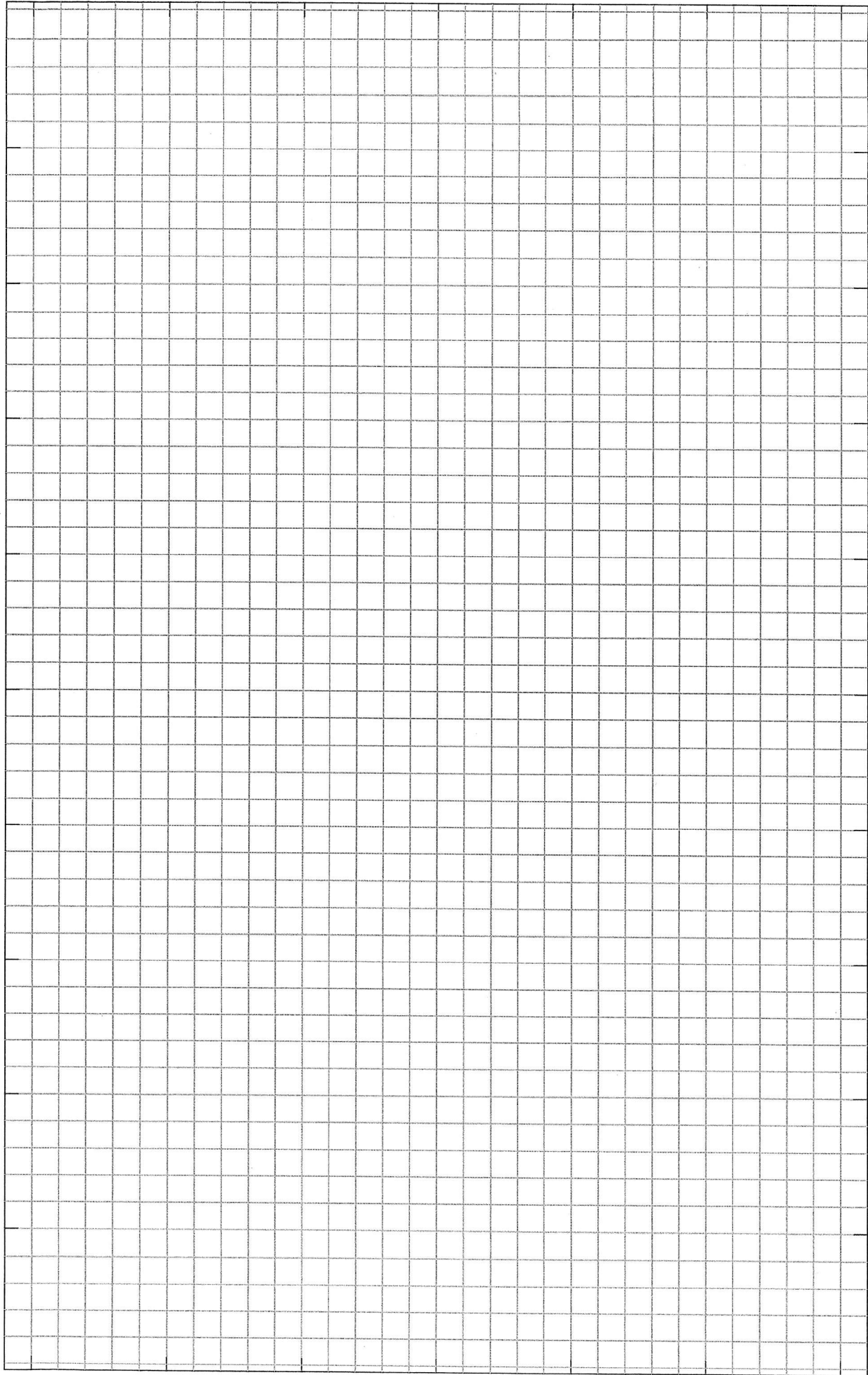


BAKER RESIDENCE
 SINGLE STORY
 NATURAL GAS
 ASP 5.5" W.C.



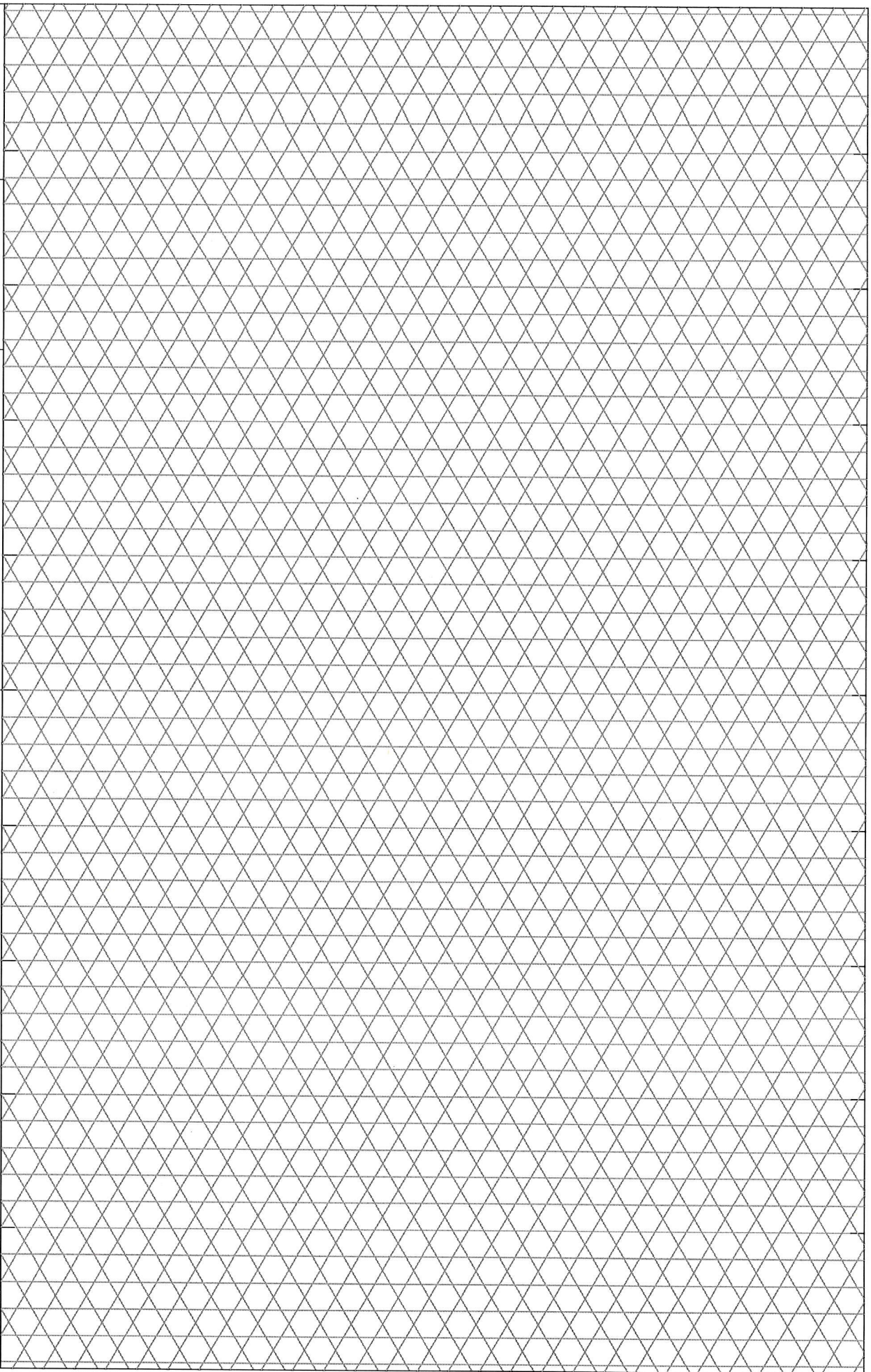
LEGEND

Title Block	Date:	Gas Supplier:
Prepared By:		ASP:
Company:		Sizing Method:
Job Name:		Piping Material:
Job Location:		Max Demand:
Gas Type:	<input type="checkbox"/> Nat. <input type="checkbox"/> L.P.	Longest Length:



LEGEND

Title Block	Date:	Gas Supplier:
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Gas Type: <input type="checkbox"/> Nat. <input type="checkbox"/> L.P.		Longest Length:



Title Block

Date:

Gas Supplier:

LEGEND

Prepared By:

ASP:

Company:

Sizing Method:

Job Name:

Piping Material:

Job Location:

Max Demand:

Gas Type:

Nat.

L.P.

Longest Length:

Performing a Pressure Test

- A Pressure test usually only occurs under two circumstances:
 1. _____ to initial operation of the piping system
 2. When the piping system is _____.
 - In order to pressure test a piping system we must "tie in" to the system. This sometimes prevents _____ parts of the piping system to be included in the pressure test. We are not required to pressure test these sections. We use bubble test to determine _____ of the "tie in" section. (CPN) A.8.1.1
 - A _____ cannot be used to separate gas in one piping section and a test medium in another section. (CPN) 8.1.1.5
 - The correct way to separate gas in one piping section and a test medium in another section is to install _____ valves in series with a " _____ " or tee located between the valves. (CPN) 8.1.1.5
 - The approved test medium gases are: (CPN) 8.1.2
 1. _____
 2. _____
 3. _____
 4. _____
- NEVER USE _____ AS A TEST MEDIUM!
- During pressure test pipe joints and welds shall be exposed for examination. (CPN) 8.1.3.1
 - _____ inspection
 - _____ inspection
 - _____ inspection

Isolating Appliances from Pressure Test

- Appliances and equipment *not intended* to be included in the pressure test are isolated from the system by _____ them from the piping. Or using blind or blank flanges or caps. (CPN) 8.1.1.3

- Appliances and equipment not designed for pressures as high as those used in the pressure test are isolated from the system by _____ them from the piping and capping the outlet. (CPN) 8.1.3.4
- Appliances and equipment **designed** for pressures as high as those used in the pressure test are isolated by closing the _____. (CPN) 8.1.3.5

Test Pressures

- If a mechanical gauge is used with the pressure test, the maximum range on the indicator scale cannot be greater than _____ the test pressure. (CPN) 8.1.4.1
 - ex: _____ psi test pressure the max allowed is _____ psi gauge
- The required test pressure is min _____ the proposed max working pressure but not less than _____ psi. (CPN) 8.1.4.2
 - ex: 2 psi operating pressure X 1.5 = _____ psi

Test Duration (CPN) 8.1.4.3

- a pressure test must last a minimum of _____ of volume for piping with a volume greater than 10 cu ft. Maximum time of _____ hours
 - Commercial
- A pressure test must last a minimum of _____ minutes for piping with a volume less than 10 cu ft.

Changes in pressure during Pressure test

- The formula to figure out how much the pressure is allowed to change due to a change in temperature is located in annex c table c.8.5
 - Commercial
- If the pressure **rises** in a gas piping system then the system is likely _____.
- If the pressure **drops**, and isn't attributed to a change in _____, we must locate it.
- When we find a leak we are required to _____. (CPN) 8.1.5.3

Performing a Leak Check

- When _____ we must inspect the gas piping system to ensure all fittings, outlets and valves are plugged or capped. (CPN) 8.2.2
- If the pressure test indicates a leak, the leak should be located using: (CPN) 8.1.5.2
 1. Approved gas detector (electric)
 2. Non-corrosive leak detector solution
 3. Other approved methods

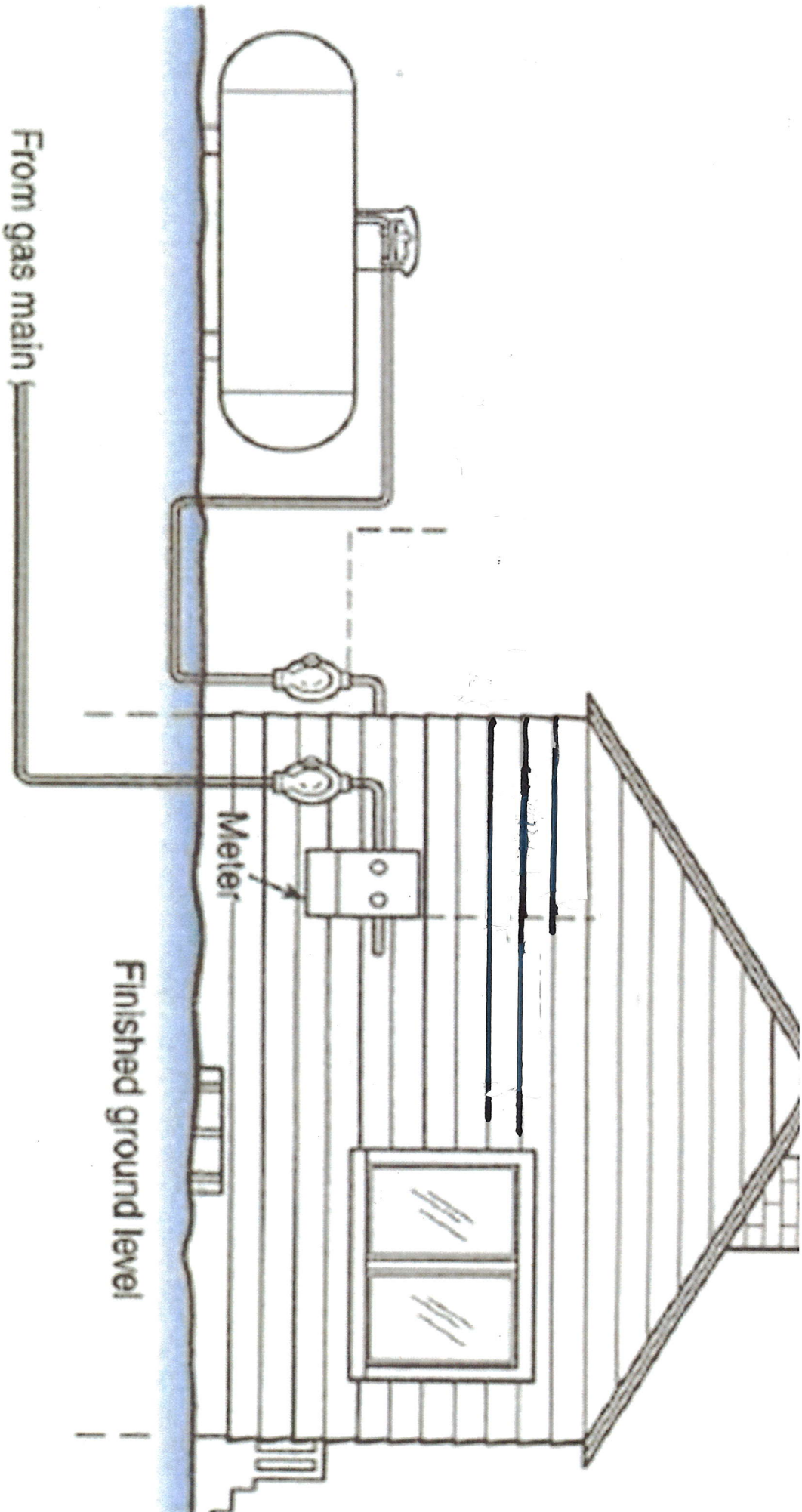
NEVER USE _____ (ex: _____)

- 5 reasons why a leak check should be performed:
 - Every time the gas is _____!
 - _____
 - _____
 - _____
 - _____
 - _____
- The difference between when a pressure test and a leak check should be performed:
 - A pressure test is needed for _____ while a leak check is required every time the gas is _____.
- Appliances should be isolated from the piping while performing a leak check because some manufactures allow for small gas leak which will not accumulate flammable amounts of gas. (Below L.E.L. {lower explosive limit})

Leak check pressure, duration and medium

- The leak check medium is _____.
- The leak check pressure is _____.
- The leak check duration in time is _____.

Annex D does not use leak detection solution or and electronic leak detector for the leak check because of _____ piping.



<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">E to C</p> <p>Grade: _____</p>	<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">F to C</p> <p>Grade: _____</p>
<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">C to C</p> <p>Grade: _____</p>	<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">C to C</p> <p>Grade: _____</p>
<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">B to B</p> <p>Grade: _____</p>	<p>Name: _____ Date: _____</p> <p>Pipe Size: _____</p> <p>Fittings: _____</p> <p>Total Length: _____</p> <p style="text-align: center;">B to B</p> <p>Grade: _____</p>

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Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
F to F	
Grade:	

Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
F to F	
Grade:	

Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
C to B	
Grade:	

Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
C to B	
Grade:	

Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
B to E	
Grade:	

Name:	Date:
Pipe Size:	
Fittings:	
Total Length:	
B to F	
Grade:	

Name: _____ Date: _____ Pipe Size: _____ Fittings: _____ Total Length: _____ C to E Grade: _____	Name: _____ Date: _____ Pipe Size: _____ Fittings: _____ Total Length: _____ C to C Grade: _____

Name:

Date:

Quiz: Basic Threading

Fittings:

- 1.
- 2.
- 3.
- 4.
- 5.

Questions:

6. Why is thread sealant important?
7. When using the hand threader oiling while threading is not important. TRUE or FALSE
8. When wrapping the threads with Teflon tape why is it important to go in the correct directions?
9. What is the name of the tool used to make short nipples on the Ridgid 300 machine?
10. What is a union used for?

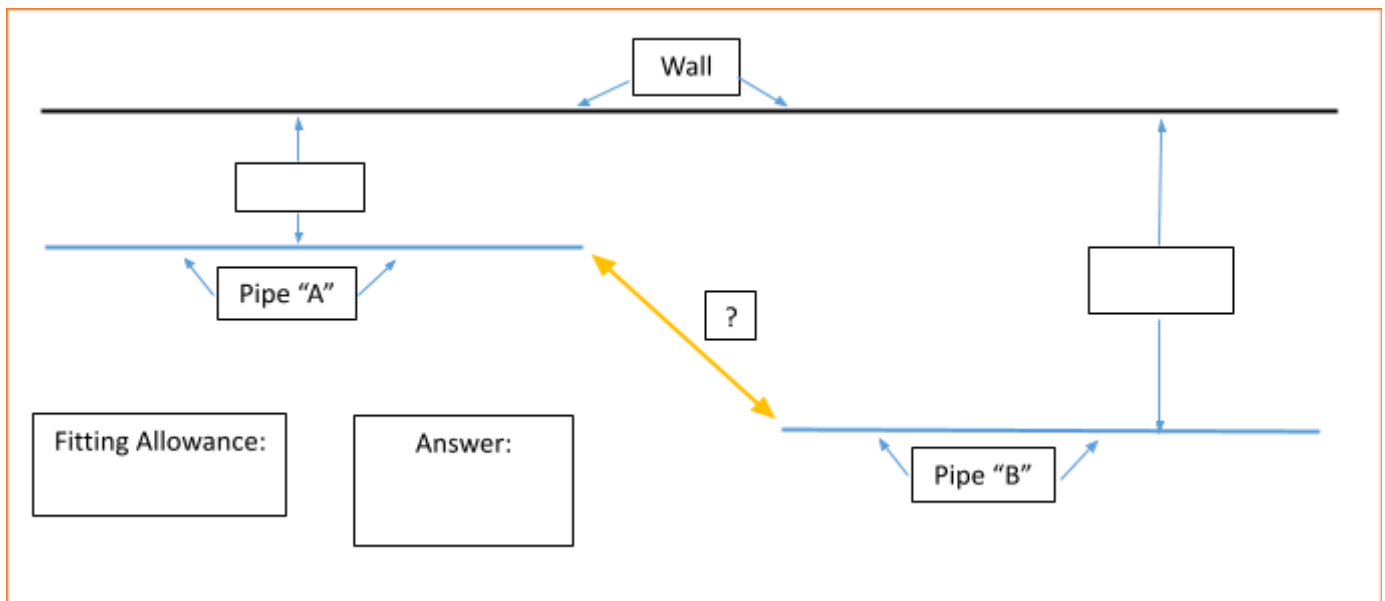


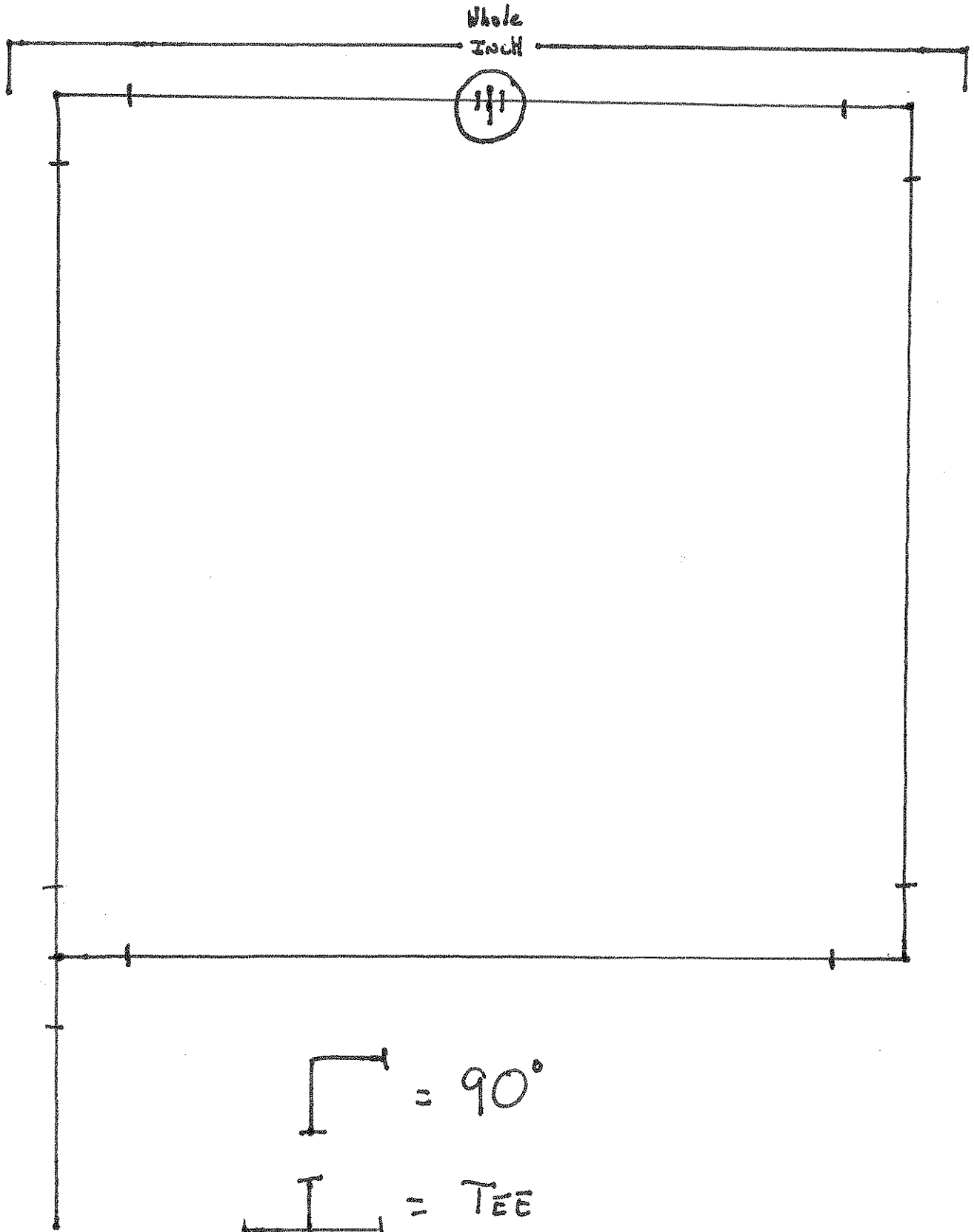
45 degree offsets

1. Convert all measurements to inches
2. Find the difference from the wall (Pipe "B" – Pipe "A" = D)
3. Convert fraction to a decimal
4. Multiply distance by 1.414 (Dx1.414=)
5. Convert answer back to fractions of an inch (try to use closest 1/8")
6. Deduct the fitting allowance (x2)
7. Length of pipe needed

Fraction to Decimal Conversion Chart

Inches Fraction	Inches Decimal
1/16"	.0625"
1/8"	.125"
3/16"	.188"
1/4"	.250"
5/16"	.313"
3/8"	.375"
7/16"	.438"
1/2"	.500"
9/16"	.563"
5/8"	.625"
11/16"	.688"
3/4"	.750"
13/16"	.813"
7/8"	.875"
15/16"	.938"
1"	1.000"





Fundamentals of GPI

Lab # 1

Introduction to Threading

Name: _____

Date: _____

1. What is the approximate thread length for a 1/2" nipple?
2. What is the approximate thread length for a 1" nipple?
3. What is the approximate make up length for a 2" nipple?
4. What is the approximate make up length for a 3/4" nipple?
5. You are trying to make a 3/4" nipple that will go between two 90's that measure 14-1/2" from face to face. How long will it need to be to accomplish this distance between fittings?
6. Thread a 1/2" nipple 8" long using the power threader.

Instructor's signature _____

7. Thread a 1" nipple 22-1/4" long using the hand threader or drop head threader.

Instructor's signature _____

You must have instructor signature for # 6 and # 7 before moving on!

8. Using the Power threader, cut the $\frac{1}{2}$ " X 8" nipple you made for #6 in half. Ream the other sides using the power threader, making (2) - $\frac{1}{2}$ " x 4" nipples (threaded on only 1 side).

9. Using the hand equipment: cut, ream, and thread one side of (7) - $\frac{1}{2}$ " nipples. Then cut them 3" long.

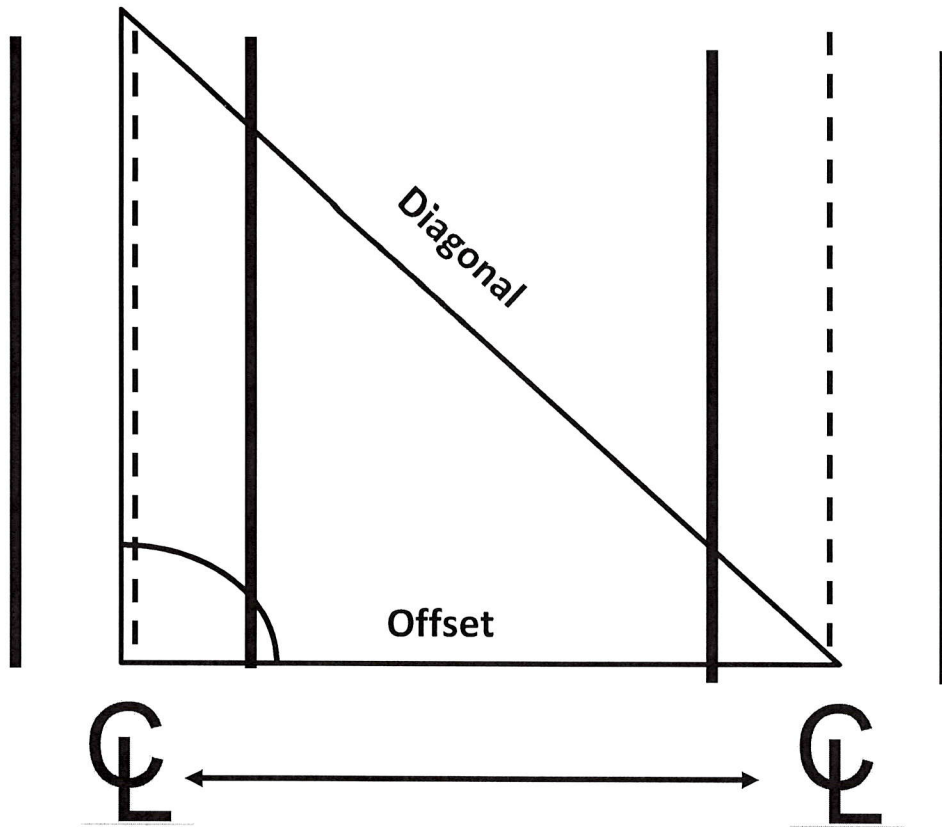
10. Now, using the power threader: ream and thread the other side of all (7) 3" nipples using the nipple chuck.

Instructor's signature _____

Figure the "G" Dimension for a 45 and a 90 for the following sizes.

$\frac{1}{2}$ "	90 _____	45 _____
$\frac{3}{4}$ "	90 _____	45 _____
1"	90 _____	45 _____
$1\frac{1}{4}$ "	90 _____	45 _____
$1\frac{1}{2}$ "	90 _____	45 _____
2"	90 _____	45 _____

Complete the following (2) 45-degree offset calculations. You can use the back of the page to show your work.



1. 45° with 1¼" Black Pipe that is 7¾" C to C
2. 45° with 2" Black Pipe that is 12¹/₈" C to C

Tilton-Northfield Fire & EMS

12 Center Street, Tilton, NH 03276

(603)286-4781 • fax (603)286-4787 • info@tnfd.org

APPLICATION FOR PERMIT TO INSTALL OR ALTER HEATING APPLIANCES AND/OR FUEL STORAGE TANKS

Application is hereby made in accordance with the provisions of NFPA 1, the Fire Prevention Code, adopted by the Tilton-Northfield Fire District and regulations made under authority thereof by the undersigned for a permit to install or alter, for the person or persons and at the location named herein, certain equipment for the keeping, storage, or use of flammable or combustible gas or liquid and solid fuels as described below. NFPA 31, 33, 33-A, 54, 58 and 211 are referenced.

Name: (owner/occupant) _____

Mailing Address: _____

Inspection Site Address: _____

Contact Phone Number(s): _____

Contractor _____

Mailing Address: _____

Contact Phone Number(s): _____

Type of Fuel

- Oil / Kerosene
- LP
- NG
- Solid-Fuel

SIGNATURE OF CONTRACTOR: X _____ DATE: _____

This application is made with full knowledge of the current regulations governing such installations, which will be made in compliance therewith. By affixing my signature to this permit application, I agree that all work done by myself or others under my supervision shall be completed in compliance to all applicable code(s), Tilton-Northfield Fire District Ordinances and the manufacturer's installation instructions.

Appliance Manufacturer/Type: _____ Serial Number: _____

Appliance Manufacturer/Type: _____ Serial Number: _____

Appliance Manufacturer/Type: _____ Serial Number: _____

Size and Location of tank(s) () U/G () A/G _____

Please check all that apply

Complete System _____ Fee: \$60.00 (Includes: interior & exterior piping & appliance)

Additional Appliance _____ Fee: \$30.00

Interior Piping Only _____ Fee: \$20.00

Tank & Exterior Piping _____ Fee: \$30.00

This application is not a permit to operate. The installer must contact the Fire Prevention Office when the installation is complete to schedule an inspection.

Office Use Only

Issued By: _____ Date Received: _____ Fee: \$ _____ CHECK # _____

Inspection Date _____ Time _____ Tag # _____ Approved _____ Not Approved _____

License Endorsements:

GPI Gas Piping Installer – holder may do gas piping only
EI – P/N Equipment Installer – Holder can install piping and equipment
ST – P/N Service Technician – Holder can install piping and equipment and service existing equipment
HST Holder works only on hearth type systems

A copy of your Mechanical License must be provided with permit application.

GAS DISTRIBUTION DIAGRAM

Appliances Served	BTU's	Fuel Type	Pipe Size
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

Piping System Diagram: (show all pipe sizes, lengths and types, including bonding connection for CSST.)

Test pressure shall be measured with a manometer or with a pressure measuring device designed and calibrated to read record or indicate a pressure loss due to leakage during the pressure test period. OXYGEN SHALL NEVER BE USED.



