







Customer	
Contact Name	
Job Number	
Plant Location	
Plant Name (If different from customer name)	
Service Representative	
Date of Service	

Fuel Devices

Key	Safety shutoff valve requirements		
Safety shutoff valve	Under 150,000 Btu/hr	150,000 to 400,000 Btu/hr	Over 400,000 Btu/hr
Safety shutoff valve with visual identification			
Safety shutoff valve with visual identification and proof of closure			

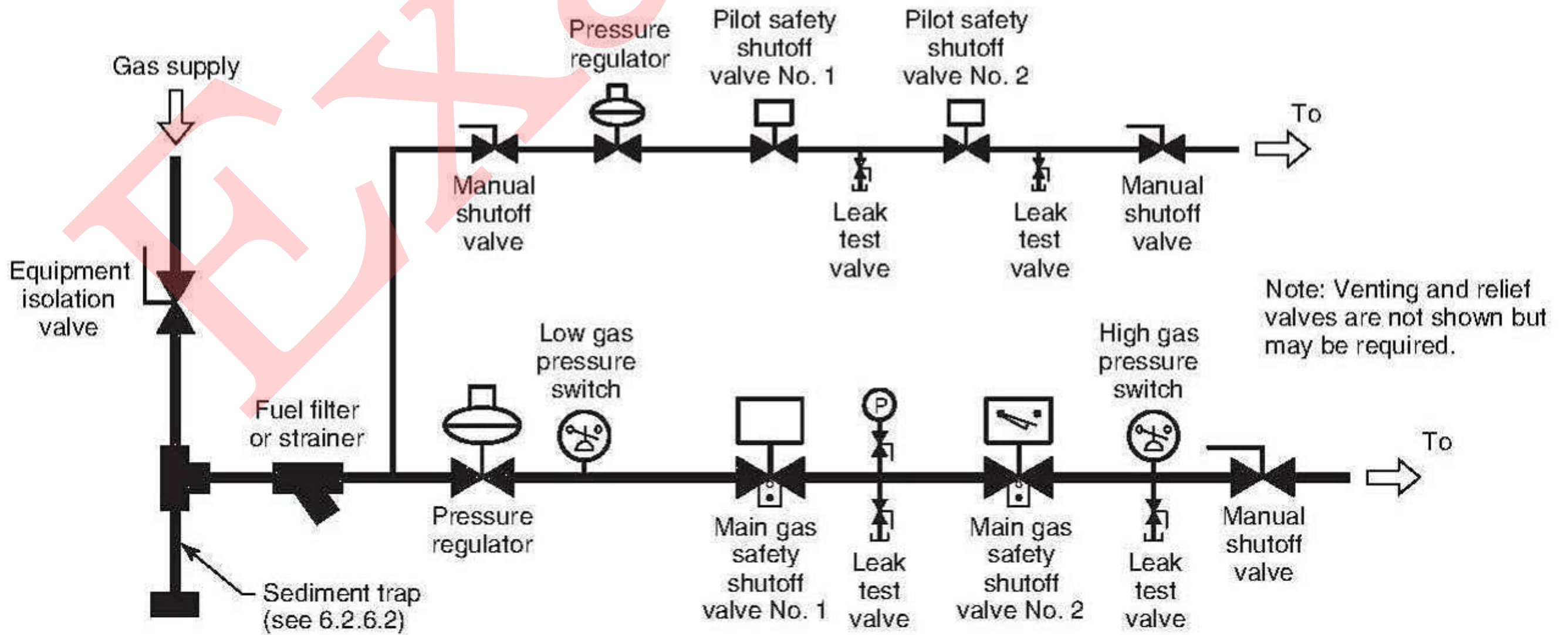


FIGURE A.8.7.2 Typical Piping Arrangement Showing Fuel Gas Safety Shutoff Valves.



Equipment Information

Equipment Name		Equipment Type	
Burner Manufacturer		Burner Rating	
Model Number		Serial Number	
Zone Number		Fuel type	

Main Gas Safety Data

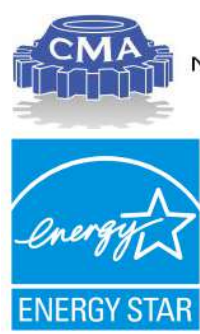
Device	NFPA / MSI Test	Pass	Fail	Corrected	N/A	Setting/Size	Measured
Main Gas Supply	MSI tests to ensure that the supply pressure is absent of fluctuations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Sediment Trap	*6.2.5.1 A sediment trap or other means of removing contaminants shall be installed downstream of equipment isolation valve and upstream of all other fuel gas system components and must be a length of no less than 3 " or 3 times the diameter of the supply piping whichever is greater.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fuel Filter / Strainer	*6.2.5.3 A gas filter or strainer shall be installed in the fuel gas piping and shall be located downstream of the equipment isolation valve and sediment trap and upstream of all other fuel gas components.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Pressure Regulator	*6.2.6.1 A pressure regulator shall be furnished whenever the plant supply pressure exceeds the burner operating or design parameters or whenever the plant supply pressure is subject to fluctuations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Low Gas Switch	*8.9.1 A low fuel pressure switch shall be provided and shall be interlocked into the combustion system circuitry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
High Gas Switch	*8.9.2 A high fuel pressure switch shall be provided and meet the following criteria: (1) Shall be interlocked into the combustion safety circuitry; (2) Shall be located downstream of the final pressure reducing regulator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Main Gas Valve 1	*7.4.9 Valve seat leakage testing of safety shutoff valves and valve proving systems shall be performed in accordance with manufacturers instructions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Main Gas Valve 2	*8.8.2.1 & 7.4.9 Each main and pilot fuel gas burner shall be equipped with either of the following: (1) Two safety shutoff valves piped in series; (2) Radiant Tube...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Manual Shutoffs	*6.2.4.1 (7) Shall be able to be operated from full open to full close and return without the use of tools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Vent Valve	MSI (if the system utilizes a vent valve it will be tested to ensure no leakage is occurring during operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
POVC Switch	8.8.2.2 Where the capacity of the main or pilot fuel gas burner system exceeds 400,000 But/ hr at least one of the safety shutoff valves between each burner and the fuel supply shall be proved closed and interlocked with the pre-ignition purge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A
Valve Proving System	8.8.2.2 Where the capacity of the main or pilot fuel gas burner system exceeds 400,000 But/ hr at least one of the safety shutoff valves between each burner and the fuel supply shall be proved closed and interlocked with the pre-ignition purge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A



Pilot Gas Safety Data

Device	NFPA / MSI Test	Pass	Fail	Corrected	N/A	Setting/Size	Measured Units
Pilot Gas Supply	MSI tests to ensure that the supply pressure is absent of fluctuations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Pilot Regulator	*6.2.6.1 A pressure regulator shall be furnished whenever the plant supply pressure exceeds the burner operating or design parameters or whenever the plant supply pressure is subject to fluctuations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Pilot Gas Valve 1	*7.4.9 Valve seat leakage testing of safety shutoff valves and valve proving systems shall be performed in accordance with manufacturers instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Pilot Gas Valve 2	*8.8.2.1 & 7.4.9 Each main and pilot fuel gas burner shall be equipped with either of the following: (1) Two safety shutoff valves piped in series; (2) Radiant Tube...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Pilot Manual Shutoffs	*6.2.4.1 (7) Shall be able to be operated from full open to full close and return without the use of tools.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Pilot Vent Valve	MSI (if the system utilizes a vent valve it will be tested to ensure no leakage is occurring during operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Pilot POVC	8.8.2.2 Where the capacity of the main or pilot fuel gas burner system exceeds 400,000 But/hr at least one of the safety shutoff valves between each burner and the fuel supply shall be proved closed and interlocked with the pre-ignition purge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A
Pilot Valve Proving System	8.8.2.2 Where the capacity of the main or pilot fuel gas burner system exceeds 400,000 But/hr at least one of the safety shutoff valves between each burner and the fuel supply shall be proved closed and interlocked with the pre-ignition purge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A

EXAMPLE



Air Control Safety Data

Device	NFPA / MSI Test	Pass	Fail	Corrected	N/A	Setting/Size	Measured Units
Circulation Fan 1	8.6.1 Where a fan is essential to the operation of the oven or allied equipment, the fan operation shall be proved and interlocked into the safety circuitry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Circulation Fan 2	8.6.1 Where a fan is essential to the operation of the oven or allied equipment, the fan operation shall be proved and interlocked into the safety circuitry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Exhaust Fan 1	8.6.1 Where a fan is essential to the operation of the oven or allied equipment, the fan operation shall be proved and interlocked into the safety circuitry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Exhaust Fan 2	8.6.1 Where a fan is essential to the operation of the oven or allied equipment, the fan operation shall be proved and interlocked into the safety circuitry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Combustion Air Switch	*8.7.2 Reduction of airflow to a level below the minimum required level shall result in closure of the safety shutoff valves.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Purge Time	*8.5.1.2 A timed pre-ignition purge shall be provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Operating Control	MSI (Is the operating temperature accurate?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
High Limit Control	*8.16.4 Operation of the excess temperature limit interlock shall require manual reset before restart of the furnace or zone.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
High Limit Indication	*8.16.6 Excess temperature limit interlocks shall be equipped with temperature indication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chamber Pressure	MSI (Is it within limitations of the burner's capabilities?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Fuel / Air Ratio	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Low Fire ^P Fuel	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
High Fire ^P Fuel	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Low Fire ^P Air	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
High Fire ^P Air	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Low Fire O2%	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	%
High Fire O2%	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	%
Low Fire CO PPM	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	PPM
High Fire CO PPM	MSI (within manufacturers specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	PPM
Flame Signal	MSI (within the FSG's specs?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	
Igniter	MSI (Igniter in good condition?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A
Flame Sensor	MSI (working properly?).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A
Combustion Blower / Burner Clean?	MSI (Cleanliness of the burner and combustion blower will affect the burners performance and longevity).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A
E-Stop	8.2.8 A manual emergency switch shall be provided to initiate a safety shutdown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A



CHATTANOOGA MANUFACTURERS ASSOCIATION



Equipment Component Information

Device	Brand	Model	Serial	Listed Device
Actuator Motor				
Burner				
Circulation Air Switch 1				
Circulation Air Switch 2				
Combustion Air Switch				
Exhaust Air Switch 1				
Exhaust Air Switch 2				
Flame Safeguard				
High Gas Switch				
High Temperature Limit Switch				
Low Gas Switch				
Main Gas Regulator				
Main Gas Valve				
Pilot Regulator				
Pilot Solenoid				
Temp Controller				
Vent Valve				



Pictures From Inspection:



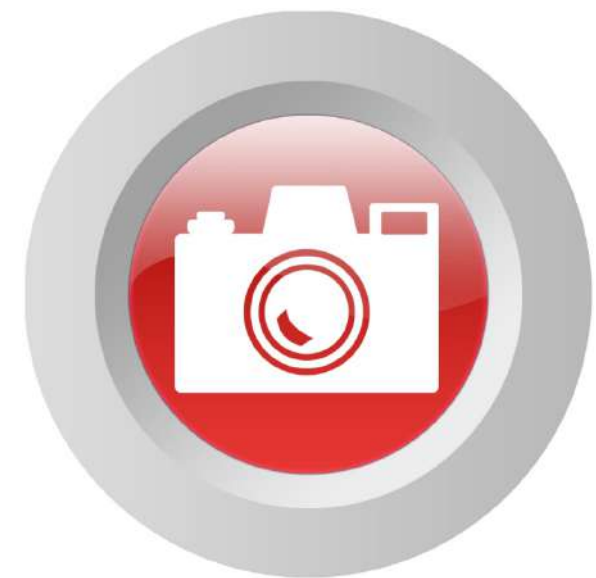
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Main Gas Safety Data

Device	
Main Gas Supply	
Sediment Trap	
Fuel Filter / Strainer	
Pressure Regulator	
Low Gas Switch	
High Gas Switch	
Main Gas Valve 1	
Main Gas Valve 2	
Manual Shutoffs	
Vent Valve	
POVC Switch	
Valve Proving System	

Air Control Safety Data

Device	
Circulation Fan 1	
Circulation Fan 2	
Exhaust Fan 1	
Exhaust Fan 2	
Combustion Air Switch	
Purge Time	
Operating Control	
High Limit Control	
High Limit Indication	
Chamber Pressure	
Fuel / Air Ratio	
Low Fire ^P Fuel	
High Fire ^P Fuel	
Low Fire ^P Air	
High Fire ^P Air	
Low Fire O2%	
High Fire O2%	
Low Fire CO PPM	
High Fire CO PPM	
Flame Signal	
Igniter	
Flame Sensor	
Combustion Blower / Burner Clean?	
E-Stop	

Pilot Gas Safety Data

Device	
Pilot Gas Supply	
Pilot Regultor	
Pilot Gas Valve 1	
Pilot Gas Valve 2	
Pilot Manual Shutoffs	
Pilot Vent Valve	
Pilot POVC	
Pilot Valve Proving System	

ADDITIONAL COMMENTS:

- 1.Ensure your burners, safeties and interlocks are tested at least annually. This is an NFPA requirement.
- 2.



References and Sources For Safety Survey:

The following codes will be used to perform the safety inspections. Metro Services, Inc. (MSI) elects to follow the entire NFPA 86 code as it applies to the entire combustion system. MSI's combustion team feels that NFPA 86 is the most comprehensive and thorough codebook available for the process heating industry. Portions of UL 295 and NFPA 54 will also be used as they offer a more in depth look at specific parts of the combustion system. UL 295 is mainly focused on the construction of the burner while NFPA 54 is focused on all aspects of the piping to and from the combustion system.

- Note - The code numbers referenced within the body of the report are all from NFPA 86. All of the referenced codes will be checked even if they are not listed in the body of the report. In the event items are found that are not on the standard pages within the body of the report they will be listed in the "Notes" section along with supporting recommendations from MSI's field representative. All discrepancies will include the applicable Codebook and Reference Number.

1. UL 295 Commercial - Industrial Gas Burners 2007 Edition

- Construction - Controls and Safety Devices (Sections 23 - 39)*
- Performance (Sections 40 - 57)*
- Markings (Sections 60 - 62)*
- Instructions (Section 63)*
 - Only the portions applicable to field installation will be covered. All manufacturing checks and/or tests will not be performed as the burner(s) are pre-existing.*
 - The low voltage checks are not applicable to the field tests and will not be completed.*

2. NFPA 54 ANSI Z223.1 National Fuel Gas Code 2015 Edition

- Chapter 5 Gas Piping System Design, Materials, and Components*
- Chapter 6 Pipe Sizing*
- Chapter 7 Gas Piping Installation*
- Chapter 8 Inspection, Testing and Purging*
- Chapter 9 Appliance, Equipment and Accessory Installation*
- Chapter 10 Installation of Specific Appliances*
- Chapter 11 Procedures to be Followed to Place Appliance Into Operation*
- Chapter 12 Venting of Appliances*
- Chapter 13 Sizing of Category I Venting Systems*
- Annex's A through I - As Applicable.*

3. NFPA 86 Standard for Ovens and Furnaces 2015 Edition

- The NFPA 86 Standard will be used in its entirety in all applicable sections as pertaining to the specific type of installation.*