**Section 22 11 19**

**Gas Control System**

PART 1 – GENERAL

1.1 SUMMARY:

1. Furnishings and installation of the Laboratory Safety Device System as shown on the Drawings as herein specified.

1.2 SCOPE OF WORK:

 A. Provide a gas safety system at each kitchen and as shown on the Drawings.

1. Each system shall include, but not be limited to, a utility controller panel, solenoid valves, electrical contactor, remote emergency shut off buttons, timers and all interconnections. The Plumbing Contractor shall provide all materials. Installation shall be in accordance with Part 3 of this section.

1.3 CODES AND REGULATIONS:

1. NFPA 70, National Electrical Code.
2. NFPA 72, National Fire Alarm Code.
3. NFPA 90A, Installation of Air conditioning and Ventilation Systems.
4. Americans with Disabilities Act.
5. Uniform Building Codes (UBC).
6. Local and State Building Codes.
7. All requirements of the local Authority Having Jurisdiction.
8. UL61010-1 3rd Edition – Electrical Equipment for Measurement, control Use

1.4 WARRANTY:

1. Provide a manufacturer’s parts warranty covering 3 Years from date of completion.
2. Refer to Division 01 section “Warranties”

1.5 MANUFACTURER:

1. Canadian Gas Safety is the basis of design. Approved equals meeting all specifications and drawing requirements are acceptable.
2. Separate components may be provided in lieu of the specified manufactured system. Including but not limited to enclosures, remote shut off buttons, contactors and solenoid valves. The system shall include all piping, wiring, conduits, and final connections for a complete operational system.
	1. SUBMITTALS:
3. Comply with Division 01 Section “Submittals Procedures”
4. Product Data:
5. Manufacturer
6. Model Number
7. Catalog Data sheet with Photographs
8. Wiring and equipment connection diagrams clearly showing factory equipment and field installed equipment.
9. Provide all equipment, devices, conduit, operating power and other provisions for the Laboratory Safety System.
10. Shop Drawings
11. Include plans, elevations, sections and mounting and attachments details.
12. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
13. Wiring Diagrams
14. Detail wiring for signal, power and control wiring
15. Operation and Maintenance Data
16. Include in Emergency, Operation and Maintenance manuals.
17. Refer to Division 01 Section “Operation and Maintenance Data”
18. Manufacturer’s recommended detailed installation instructions.
19. Equipment is not to be ordered without approved submittals

PART 2 – PRODUCTS

2.1 PRODUCTS IN THIS SECTION:

All Products and Devices for a complete Laboratory Safety Device System with all

components designed to operate together as a system. The system shall and be UL listed

and labelled and be as listed in the Equipment Schedule of this Section.

2.2 UTILITY CONTROLLER:

Provide a Utility Controller with fascia panel mounted switches to activate remote solenoids and relays to control natural gas, and or other indicated services or devices. Utility Controller shall be certified to Underwriter’s Laboratory UL61010-1 3rd Edition Standards. Controller shall provide line voltage signals for output circuits. Controller shall provide inputs for remote EPO’s and BMS. The Controller shall be equipped with an Authority Key Lock that restricts activation and de-activation of output signals to owner operator. Controller shall be provided with a fascia mounted recessed EPO button. Basis of design CGS Merlin 1000Si

2.4 GAS SOLENOID VALVE:

Where shown on Drawings, Provide a Gas Solenoid Valve: UL Listed 429, CSA Certified, FM 400 liquid or gas safety shut-off valve. Aluminium body two-way normally closed valve rated for natural gas (methane) and LPG (liquid petroleum gas). Size to be same as pipe size indicated on plans, 120 volt ac single phase actuator, 15 watts, and 5 PSI maximum operating pressure capacity. Interlock Master Gas Valve with Merlin Panel output. Manufacturer: Canadian Gas Safety (CGS) series CGSGSV\*\*\*\* or equivalent

2.5 ELECTRICAL CONTACTOR:

Electrical contactors shall receive signal from utility control panel to govern the electrical power going to the kitchen range. Associated circuits shall be ran from the electrical panel, through the contactor to the receptacles. Contactor shall be rated for 50amp service and provide 4poles in a normally open configuration capable of receiving a 110v 3amp signal. Number of contactors, location, circuit numbers are as noted on the electrical panel schedule or drawings. Basis of design CGS CON4P50ANO or equivalent.

2.5 REMOTE PANIC BUTTON:

Where shown on Drawing, provide a Remote Panic Button. Button shall be red mushroom twist re-set type recessed in a yellow polycarbonate enclosure with a clear lift up protective shield. Button shall be UL listed and provide clear label text “Emergency Gas Shut Off”. Assembly shall be located as shown on Drawings and as stipulated in Equipment Schedule. Integrate assembly with low voltage input on Utility Controller.

PART 3 – INTERGRATION AND CONFIGERATION

* 1. Building Automation or Management Systems (BMS):
1. Where shown on Drawings, provide low voltage integration wiring from each Controller to connection point on BMS. Merlin Controller provides a NO, COM and NC relay output for BAS / BMS integration, the relay will change state in “Alarm” or “Gas On”. The Merlin Controller can accept low voltage signal from Fire Alarm to shutdown utilities in case of fire alarm. Final connection by others. See manufactures instructions.

3.2 Building Annunciation Signal

1. Where shown on drawings, provide a dry contact volt free normally closed output to interrupt utility control remote panic input. Utility control shall de-energize outputs when in alarm and require keyed re-set.
	1. SYSTEM CONFIGURATION:
2. Utility Controller shall be factory configured to the standard configurations and shall be capable of field adjustments to meet specific project modification requirements. Configurations are limited to DIP switch adjustments on rear of fascia panel without the requirement of additional equipment.
3. Services:

Control of services can be combined onto one output circuit as indicated on Drawings. Services shall be activated by the engaging of the authority control key. Re-activation of the services after an alarm condition shall be restricted to the user by means of the authority key lock switch.

1. Panic Alarm Re-Set:

Remote panic buttons wired in series report back to the control panel. Unless stated elsewhere on Drawings, The Controller shall only re-set from panic alarm after engagement of the authority key on fascia panel and after local panic alarm has been re-set.

1. Fire Alarm Re-set:

Unless stated elsewhere on Drawings, the Utility Controller shall be configured so that continued fire alarm signal to Controller shall prevent re-set.

PART 4 – EXECUTION

4.1 INSTALLATION:

1. Install in accordance with manufacturer’s recommendations and instructions. Verify manufacturer’s mounting heights to comply with ADA or other standards.
2. Finish and install all devices as shown in Drawings and as specified herein. Where device is to be installed by other trades, furnish and then turn over to appropriate trade for installation.
3. Furnish, install and make final connections to monitoring and remote EPO’s and Panic Buttons as indicated on Drawings and specified herein. Furnish and install low voltage and volt free control wiring from Utility Controller to connection point on BMS and Exhaust Fan controller. Final connection by others.

4.2 PLUMBING:

1. Make final connections to all piping systems where indicated by Drawings and specifications. Install in accordance with SECTION 221116

4.3 ELECTRICAL:

1. Electrical Contractor shall furnish all conduit and wiring, making final wiring connections to all equipment as indicated by Drawings and specifications. Contractor shall be responsible for all system configurations, integration, test and start-up.

PART 5 – SYSTEM TEST AND START-UP

1. Prior to placing the Utility Controller System into service, perform ALL Start-Up procedures and checklists as stated in Manufacturer’s Operations and Maintenance Procedure
2. Verify that all components and devices comply with manufacturer’s requirements and recommendations and that all devices and installations conform to Drawings and specification requirements.
3. Upon completion of ALL Start-Up tests, place the system into service. Complete all warranty registration documents. Submit originals with other project related closeout and O & M documentation. Review all operating procedures with a representative of the owner. Provide all System Authority Keys to the owner’s representative.

PART 6 – EQUIPMENT SCHEDULE

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| --- | --- | --- | --- |
| Product | Model | Description  | Remarks |
| Controller | 1000Si | Gas  |  |
| Flush Mount Kit | CGSFMK | Rough in Box | optional |
|  Gas Valve | CGSGSV\*\*\*\* | 0-5PSI 110V NC NPT | Size Dependant |
| Remote Panic Button | CGSEGOTW | Twist release clear cover | “Emergency Gas Shut Off” |
| Electrical Contactor | CGSCON4P50ANO | 4pole 50amp NO  |   |

\* All sensors should be mounted for the desired gas requirements. Consult manufacturer for recommendations and requirements.