ADDENDUM 004

Nevada Union High School CTE/Ag Mechanics Modernization
Nevada Joint Union High School District

May 9, 2020

Revision #1

Reference is made to Sheet A3.5, grid coordinates G-4. A second reach-in refrigerator will be installed in the southeast corner of room F6 in addition to the one already shown. This will require that the new plastic laminate casework shown on the south wall of this room is revised to one half of the length currently shown on sheet A6.3, detail D15, “South” elevation.

Provide a 115/60/1 phase, 15 amp dedicated outlet at this location.

Revision #2

Attached is a revised version of specification section 08 33 00 “ROLLING FIRE DOORS” and related product literature. This replaces the section distributed with the bid publication, changing door number 18 on sheets A3.2 and A7.1 to a different manufacturer.

Revision #3

Reference is made to sheet A4.2, keynotes 5.08, 5.09, and 5.10, and sheet A7.3, detail J15: Sheet metal shall be pre-finished / powder-coated material to match existing, in lieu of “painted to match existing”

Clarification # 1

Both refrigerators in “Floral Storage” room F6 are furnished and installed by the District.

Clarification # 2

Data and telecom infrastructure that services the nearby District Office is routed through this building. It is the responsibility of the General Contractor to protect the integrity and continuous functionality of this element. It is acknowledged that brief interruptions in this service may be necessary to accomplish the work, but these shall, to the greatest extent reasonable, occur outside the normal working hours of the District Office, and shall be coordinated in advance with the District.
Clarification # 3

Security cameras are mounted on this building. It is the responsibility of the General Contractor to protect the integrity and continuous functionality of this system. It is acknowledged that brief interruptions in any one camera’s functionality may be necessary to accomplish the work, but the frequency and duration of these interruptions shall be limited to the greatest reasonable extent.

Addition # 1

Reference is made to sheet A3.5, grid coordinates C-5. Countertop autoclave marked with note 11.05 will be removed and salvaged, but not returned to this location. Contractor shall terminate in a concealed but accessible location per the specifications for possible future re-connection, but shall not remove the electrical and plumbing utilities that serve this equipment.

Addition # 2

Reference is made to sheet A3.2. The westerly overhead door at grid coordinates D-8 shall be painted blue on both the interior and exterior sides to match the existing easterly overhead door at grid coordinates D-5 / D-6.

Addition # 3

Reference is made to sheet C3.1, attached civil engineering sheet 1 of 2, attached detail sheet C4.3. Additional notations and details have been added describing the (new, not existing) irrigation backflow assembly and added quick connect elements to be installed at this location.

Addition # 4

Reference is made to sheet C3.1. Contractor shall excavate and expose existing gas lines serving the building in 4 locations between the building and the manifold at the fenced enclosure west of the building at grid coordinates G-11.

Contractor shall coordinate with District staff to evaluate the age, condition, and likely serviceable life remaining for the line.

Refer to attached revised “UNIT PRICING” document to be submitted with the Contractor’s bid. This version replaces the one in the published Bidding Documents. Item "K" has been added to the revised pricing list.

Contractor shall provide a price per linear foot for installation of 1 1/2” PE gas piping per this addendum, based on 50 feet to 200 feet of piping, including connections, etc. See “Gas Riser detail 1” on attached sheet C4.3 and added specification section “Facility Gas Distribution Piping”. At service connection to building, connect to existing regulator using anodeless steel riser and install a new shut-off valve.
PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead coiling fire service doors.

1.2 RELATED SECTIONS

A. Section 06 10 00 Rough Carpentry

B. Section 06 20 00 - Finish Carpentry: Wood jamb and head trim.

C. Section 08 71 00 - Door Hardware: Product Requirements for cylinder core and keys.

D. Division 26 Electrical Wiring and conduit, fuses, disconnect switches, connection of operator to power supply, installation of control station and wiring, and connection to alarm system.

E. Division 26 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.

F. Division 26 - Wiring Connections: Power to disconnect.

1.3 REFERENCES

A. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.


D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. NEMA MG 1 - Motors and Generators.


1.4 DESIGN / PERFORMANCE REQUIREMENTS

1.5 SUBMITTALS

A. Submit under provisions of Bidding Documents.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Details of construction and fabrication.
   4. Installation methods.

C. Shop Drawings: Include detailed plans and elevations, details of framing members, anchoring methods, clearances, hardware, and accessories.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience.

B. Installer Qualifications: Installer Qualifications: Company approved by manufacturer, specializing in performing Work of this section with minimum three years experience, with IDEA Certified Installers and service technicians on staff.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.
B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer’s absolute limits.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

A. Manufacturer’s Warranty: Provide manufacturer’s two year limited warranty.

B. Warranty: Manufacturer’s limited door and operators System warranty of all parts and components of the system except counterbalance spring and finish for 3 years or 20,000 cycles, whichever comes first.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX. CONTACT: Overhead Door of Sacramento 916-340-8514

2.2 OVERHEAD COILING FIRE SERVICE DOORS

A. Overhead Coiling Fire service Doors: FireKing Model 630 Fire Doors.

1. Label: Provide fire doors certified with the following listing.
   a. Rolling fire doors up to 152 sf (14.12 sm) and 13 feet 6 inches (4.11 m) in width or height shall receive the UL 1-1/2-Hour Class B Label for installation in non-masonry walls, face mounted or between jambs.
   b. Provide UL labeled smoke protection where indicated. Comply with with UL label for "Leakage Rated Assembly" or "S" label. 1) Comply with NFPA 105 air leakage requirements.
2) Pass UL test procedure 1784.

2. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
   a. Flat profile type F-265 for doors thru 14 feet (4.27 m) wide by 12 feet (3.65 m) high, fabricated of:
      1) 20 gauge galvanized steel.

3. Finish:
   1) Powder coat: PowderGuard
   b. Non-galvanized exposed ferrous surfaces shall be black powder coated.

4. Bottom Bar: Two structural steel angles with PowderGuard Zinc Finish 1-1/2 inch by 1-1/2 inch by 1/8 inch (38 mm by 38 mm by 3 mm) minimum.
   b. Fastening Guides to Non-Masonry Fire Walls: Comply with the manufacturer’s listing.

5. Brackets: To support counterbalance, curtain and hood
   a. Hot rolled steel with PowderGuard Zinc finish.

6. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.

7. Hood:
   a. Fabricate of 24 gauge galvanized primed steel minimum for wall openings thru 19 feet (5.79 m) wide.
   b. Hood equipped with thermally controlled, internal, galvanized steel flame baffle as required for FM listing.

8. Electric Motor Operation: Provide electric operator as listed in the door UL file, for size as recommended by manufacturer to move door in either direction.
   a. Floor Resettable Electric Motor Operation.
   b. Sensing Edge Protection:
      1) Pneumatic sensing edge.
   c. Operator Controls:
      1) Key operation with NEMA 1 interior, NEMA 4 exterior, surface and flush mounted open, close, and stop controls.
   d. Special Operation:
      1) Explosion and dust ignition proof control wiring.

   a. Doors will be equipped with floor resettable electric motor operation system, requiring only one sash chain to be routed to the operated side (sash chain not required to be routed to adjusting wheel side.)
1) Release mechanism includes planetary gear differential system.
2) Door will close by a thermally actuated link rated @165 degrees F, or by an optional listed releasing device, or by manually activating the release handle.
3) All counterbalance spring tension shall be maintained when the release mechanism is activated.
4) After closing by alarm activation with power on the electric motor, the door shall be able to be reset by resetting the alarm system without additional tools required.

b. Fire Sentinel time-delay release mechanism provides an added measure of safety to control the doors' closure.

10. Governor: provide a viscous governor to regulate the rate of descent of door in a quiet manner. Use an engagement type that is not engaged during normal door operation, but after cable release, will retard the speed during automatic door closure to under 24 inches per second and not less than 6 inches per second per NFPA 80.

11. Locking:
   a. Interior slide bolt lock for electric operation with interlock switch.

12. Wall Mounting Condition:
   a. Face-of-wall mounting.

2.3 FIRE SENTINEL TIME-DELAY RELEASE

A. Model FSCX24V Release Device: For motorized doors operating on a voltage of 24VDC with battery backup.

1. Release device shall be used in conjunction with an appropriate UL 325-rated commercial door operator, either a gearhead, jackshaft, or hoist operator equipped with auxiliary open and close limit switches, to create a door closing system.
2. Capable of holding and releasing up to a 40 lb. load imposed by a fusible link/sash chain assembly attached to a release mechanism within the door construction.
3. Provide with an internal battery backup system capable of providing up to 24 hours of battery power to support alarm logic, smoke detector, release capability and audible and visible signaling appliances. Device shall monitor battery charge and annunciate the need for battery replacement via an integral sounder; a green, enclosure-mounted LED that indicates the presence of the battery backup system.
   a. Battery backup/power system shall contain a management system providing trickle charge capabilities.
b. During a power outage, and upon depletion of the battery, the device will initiate door closure by releasing the fusible link/sash chain assembly and initiating gravity closure of the door.

c. A DIP-switch selectable feature shall provide the capability of operating on battery power upon loss of line power or closing the door through the release of the fusible link assembly initiating gravity closure of the door.

4. Includes DIP-switch selectable delay settings of 10, 20, or 60 seconds upon alarm activation to allow for passageway clearance before initiating door closure.

5. Capable of receiving an alarm input from compatible 2-wire normally open smoke detectors, 4-wire normally open smoke detectors, or normally open heat detectors, or input from a fire alarm control panel via a relay module providing a Form C dry contact output to the release device.
   a. Capable of receiving input from a maximum of two smoke detectors.
   b. Use with an End-of-Line (EOL) device to ensure the integrity of the wiring.

6. Provide with optional audible and visual signaling appliances to operate during the alarm closing cycle. Device shall be capable of activating and powering a maximum of two audible/visible notification devices, e.g. strobes, horns or horn/strobes. Device shall recognize that the door is in the closed position via input received from a proximity switch, located underneath the door and activated when the door is in the closed position and resting upon the switch, to prevent accidental release of the fusible link/sash chain (or 1/16th cable) assembly; an amber, enclosure-mounted LED shall indicate activation of the proximity switch.

7. Provide with relay and trouble outputs to provide notification to a fire alarm control panel when an alarm or trouble state exists.

8. Circuit board shall have diagnostic LEDs to assist with field installation by indicating alarm or trouble conditions present within the smoke detector loops, as well as activation of the auxiliary close limit switch.

9. Includes an enclosure-mounted test switch that simulates an alarm condition when depressed and held for a length of time equal to the DIP-switch selectable delay setting, either 10, 20, or 60 seconds. A remote key test switch is also provided to simulate an alarm condition during testing procedures.

10. Hold open/release device shall recognize that the door is in the closed position and where motor driven, be capable of sensing that power is available to the motor. The device may be wired to close on alarm.

11. Upon alarm, the device shall offer the DIP-switch selectable feature of motorized door closure through the operator or bypassing the operator and initiating gravity door closure by releasing the fusible link assembly and engaging the door’s release mechanism.
12. Audible and visual signaling appliances shall be provided to annunciate closure due to alarm or power loss conditions.

13. Device shall provide three-time obstruction cycling of the door through the operator
   a. An electric sensing edge (by others) attached to the bottom edge of the door, and connected to both the device and the operator.
   b. Upon contact by the sensing edge with an obstruction, the closing door shall reverse and the device will instruct the operator to repeat the attempt at closure two additional cycles.
   c. Failure to reach the closed position will activate the one of two selectable actions:

14. Release device shall reverse the direction of the door through the operator upon the sensing edge making contact with an obstruction and repeat the attempt to achieve closure for two additional cycles.
   a. Mode of operation upon failure to close the door shall be one of two DIP-switch selectable options
      1) Failure to reach the closed position upon completion of the closure cycle or within a factory set time limit will result in the door being lowered by the operator upon the object. The door will rest on the obstruction until the obstruction is removed, at which point the door will resume closure through the operator to a fully closed position.
      2) Failure to reach the closed position upon completion of the closure cycle or within a factory selected time limit will result in gravity closure of the door. The door will rest on the obstruction until the obstruction is removed, at which point door closure shall be achieved through gravity drop.
   b. Device shall provide a DIP-switch selectable 4-minute or 2-minute safety timer setting that will initiate gravity door closure if the operator close limit is not completed with the selected time or one of the modes of operation upon encountering an obstruction is not completed.
   c. Loss of power to the operator or release device an alarm condition will result in gravity closure of the door.

15. Upon successful test completion of door closure through the operator with no obstructions encountered, the release device shall offer the DIP-switch selectable feature of allowing automatic open after the test input is cleared.

16. Release device shall offer a dry contact relay that may be used to activate signaling appliances or other external signaling functions.

B. Model FSCX120 Release Device: For motorized doors operating on a voltage of 120VAC with battery backup.
   1. Release device shall be used in conjunction with an appropriate UL 325-rated commercial door operator, either a gearhead, jackshaft, or
hoist operator equipped with auxiliary open and close limit switches, to create a door closing system.

2. Capable of operating on a voltage of 120VAC, and shall contain internal fuse and transient protection to guard against power surges; a red, enclosure-mounted LED shall indicate power to the device.

3. Capable of holding and releasing up to a 40 lb. load imposed by a fusible link/sash chain assembly attached to a release mechanism within the door construction.

4. Provide with an internal battery backup system capable of providing up to 24 hours of battery power to support alarm logic, smoke detector, release capability and audible and visible signaling appliances. Device shall monitor battery charge and annunciate the need for battery replacement via an integral sounder; a green, enclosure-mounted LED that indicates the presence of the battery backup system.
   a. Battery backup/power system shall contain a management system providing trickle charge capabilities.
   b. During a power outage, and upon depletion of the battery, the device will initiate door closure by releasing the fusible link/sash chain assembly and initiating gravity closure of the door.
   c. A DIP-switch selectable feature shall provide the capability of operating on battery power upon loss of line power or closing the door through the release of the fusible link assembly initiating gravity closure of the door.
   d. Hold open/release device shall recognize that the door is in the closed position and where motor driven, be capable of sensing that power is available to the motor. The device will be wired to close on alarm.

5. Includes DIP-switch selectable delay settings of 10, 20, or 60 seconds upon alarm activation to allow for passageway clearance before initiating door closure.

6. Capable of receiving an alarm input from compatible 2-wire normally open smoke detectors, 4-wire normally open smoke detectors, or normally open heat detectors, or input from a fire alarm control panel via a relay module providing a Form C dry contact output to the release device.
   a. Capable of receiving input from a maximum of two smoke detectors.
   b. Use with an End-of-Line (EOL) device to ensure the integrity of the wiring

7. Provide with optional audible and visual signaling appliances to operate during the alarm closing cycle. Device shall be capable of activating and powering a maximum of two audible/visible notification devices, e.g. strobes, horns or horn/strobes. Device shall recognize that the door is in the closed position via input received from a proximity switch, located underneath the door and activated when the door is in the closed position and resting upon the switch, to prevent accidental
release of the fusible link/sash chain (or 1/16th cable) assembly; an amber, enclosure-mounted LED shall indicate activation of the proximity switch.

8. Provide with relay and trouble outputs to provide notification to a fire alarm control panel when an alarm or trouble state exists.

9. Circuit board shall have diagnostic LEDs to assist with field installation by indicating alarm or trouble conditions present within the smoke detector loops, as well as activation of the auxiliary close limit switch.

10. Includes an enclosure-mounted test switch that simulates an alarm condition when depressed and held for a length of time equal to the DIP-switch selectable delay setting, either 10, 20, or 60 seconds. A remote key test switch is also provided to simulate an alarm condition during testing procedures.

11. Upon alarm, the device shall offer the DIP-switch selectable feature of motorized door closure through the operator or bypassing the operator and initiating gravity door closure by releasing the fusible link assembly and engaging the door’s release mechanism.

12. Audible and visual signaling appliances shall be provided to annunciate closure due to alarm or power loss conditions.

13. Device shall provide three-time obstruction cycling of the door through the operator
   a. An electric sensing edge (by others) attached to the bottom edge of the door, and connected to both the device and the operator.
   b. Upon contact by the sensing edge with an obstruction, the closing door shall reverse and the device will instruct the operator to repeat the attempt at closure two additional cycles.
   c. Failure to reach the closed position will activate the one of two selectable actions:

14. Release device shall reverse the direction of the door through the operator upon the sensing edge making contact with an obstruction and repeat the attempt to achieve closure for two additional cycles.

   a. Mode of operation upon failure to close the door shall be one of two DIP-switch selectable options
      1) Failure to reach the closed position upon completion of the closure cycle or within a factory set time limit will result in the door being lowered by the operator upon the object. The door will rest on the obstruction until the obstruction is removed, at which point the door will resume closure through the operator to a fully closed position.
      2) Failure to reach the closed position upon completion of the closure cycle or within a factory selected time limit will result in gravity closure of the door. The door will rest on the obstruction until the obstruction is removed, at which point door closure shall be achieved through gravity drop.

   b. Device shall provide a DIP-switch selectable 4-minute or 2-minute safety timer setting that will initiate gravity door closure
if the operator close limit is not completed with the selected time or one of the modes of operation upon encountering an obstruction is not completed.

c. Loss of power to the operator or release device an alarm condition will result in gravity closure of the door.

15. Upon successful test completion of door closure through the operator with no obstructions encountered, the release device shall offer the DIP-switch selectable feature of allowing automatic open after the test input is cleared.

16. Release device shall offer a dry contact relay that may be used to activate signaling appliances or other external signaling functions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install rolling counter fire doors in compliance with requirements of NFPA 80. Test fire-release system and reset components after testing.

C. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

D. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
E. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

F. Install and test Fire Sentinel release device(s) in accordance with the manufacturer’s instructions and in compliance with applicable regulations and codes of the local authority having jurisdiction.

G. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.

H. Install perimeter trim and closures.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Release device(s) shall be tested and witnessed for proper operation with the door manufacturer recommendations

C. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 FIELD QUALITY CONTROL

A. Functional testing of fire door and window assemblies shall be performed by IDEA Certified personnel with knowledge and understanding of the operating components of the type of door being subject to testing.

3.6 CLEANING

A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.7 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION
## Standard features at a glance

### Technical data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
<td>Exterior/Interior for fire rated walls</td>
</tr>
<tr>
<td><strong>Operation</strong></td>
<td>Non-motorized, mechanical floor resettable hoist with viscous governor</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Face of wall (between jambs optional on 630,631,635)</td>
</tr>
<tr>
<td><strong>Models</strong></td>
<td>630 – Standard fire door</td>
</tr>
<tr>
<td></td>
<td>631 – Basic fire door</td>
</tr>
<tr>
<td></td>
<td>634 – Fire door up to 24’x24’; 4 hour rating UL</td>
</tr>
<tr>
<td></td>
<td>635 – Insulated fire door</td>
</tr>
<tr>
<td><strong>Drop speed</strong></td>
<td>Meets NFPA 80 requirements of 6&quot; to 24&quot; per second</td>
</tr>
<tr>
<td><strong>Curtain</strong></td>
<td>Steel slats in a variety of gauges</td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>Baked-on polyester top coat in Gray, Tan, White or Brown</td>
</tr>
<tr>
<td><strong>Guides</strong></td>
<td>Three steel angles (some use structural and some are roll formed)</td>
</tr>
<tr>
<td><strong>Bottom bar</strong></td>
<td>Steel double angle</td>
</tr>
<tr>
<td><strong>Counterbalance system</strong></td>
<td>High tensile helical torsion spring housed in a steel tube or pipe</td>
</tr>
<tr>
<td><strong>Brackets</strong></td>
<td>Steel plates to support counterbalance, curtain and hood</td>
</tr>
</tbody>
</table>

### Limited warranty

- 2-Year Limited
- 3-Year/20,000 Cycles Limited on Overhead Door™ door and operator system (when purchased together)

## Options

- Between jamb mount (630, 631, 635)
- Fire Sentinel® time-delay release device
- FireLite® vision lite (Flat and insulated slats only with a max of 4 per door)
- Smoke detectors and heat detectors
- UL-listed brush-type smoke seals “S” label (flat or insulated slats only)
- Flame baffle system - an FM requirement
- UL, ULC and FM labels available
- Horns and horns with strobes
- Tension release: push-up or crank, electric motor: RHX® or RSX®
- Non-tension hoist or electric motor: RSX® FDO or RHX® FK
- Stainless or galvanized steel: curtain, hood, guides, bottom bar
- Slide bolts, cylinder locks, interlocks
- Wind load options to include: Florida Building Code (FBC), Miami-Dade, Texas Department of Insurance (TDI)
- PowderGuard® Premium powder coat in approximately 200 RAL standard colors or color-matched to specification
- PowderGuard® Zinc and PowderGuard® Textured finishes

**Cover image:** Model 630 with C187 slats, Gray powder coat finish

**Image above:** Model 630 with C187 slats
## Fire door selection chart

<table>
<thead>
<tr>
<th>Series</th>
<th>630</th>
<th>631</th>
<th>634</th>
<th>635</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Label</strong></td>
<td>FFM / UL or FM 1½ or 3 hr</td>
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<td>FFM / UL or FM 1½ or 3 hr</td>
<td>FFM / UL or FM 1½ or 3 hr</td>
</tr>
<tr>
<td>UL/ULC/FM 1½ or 3 hr</td>
<td>Up to 13’6” (4,115 mm) width/height, max. 152 sf (14.121 sm)</td>
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<tr>
<td>UL 4 hr</td>
<td>Up to 13’6” (4,115 mm) width/height, max. 152 sf (14.121 sm)</td>
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<tr>
<td>UL oversized door</td>
<td>Over 152 sf (14.121 sm)</td>
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<tr>
<td>FM (optional) oversized door</td>
<td>Over 152 sf (14.121 sm), but less than 18’ (5,486 mm) height or width. Over 18’ must be certified by FM*</td>
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<tr>
<td><strong>Applications</strong></td>
<td></td>
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<tr>
<td>Masonry/steel</td>
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<tr>
<td>Non-masonry</td>
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<tr>
<td><strong>Standard</strong></td>
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</tr>
<tr>
<td>Maximum width</td>
<td>41’2” (12,548 mm)</td>
<td>14’ (4,267 mm)</td>
<td>41’2” (12,548 mm)</td>
<td>24’ (7,351 mm)</td>
</tr>
<tr>
<td>Maximum height</td>
<td>25’4” (7,722 mm)</td>
<td>12’ (3,658 mm)</td>
<td>25’4” (7,722 mm)</td>
<td>24’ (7,351 mm)</td>
</tr>
<tr>
<td>Curtain material</td>
<td>Painted galvanized steel/stainless steel</td>
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<td>Painted galvanized steel/stainless steel</td>
</tr>
<tr>
<td>R-value**</td>
<td></td>
<td></td>
<td>4.5</td>
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</tr>
<tr>
<td>Sound transmission class</td>
<td></td>
<td></td>
<td>21 STC†</td>
<td></td>
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<tr>
<td><strong>Available Options</strong></td>
<td></td>
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<tr>
<td>Fire Sentinel® time-delay release device</td>
<td></td>
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<tr>
<td>Smoke detectors</td>
<td></td>
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<tr>
<td>FireLite® vision lites</td>
<td></td>
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<tr>
<td>UL listed brush-type smoke seals</td>
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<tr>
<td>Windload (FBC, TDI, MiamiDade)</td>
<td></td>
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<tr>
<td><strong>Operation options</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Push-up</td>
<td>Up to 80 sf (7.43 sm)</td>
<td>Up to 80 sf (7.43 sm)</td>
<td>Up to 80 sf (7.43 sm)</td>
<td></td>
</tr>
<tr>
<td>Chain hoist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crank</td>
<td></td>
<td></td>
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<tr>
<td>Electric motor</td>
<td></td>
<td></td>
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<tr>
<td><strong>Locking option</strong></td>
<td></td>
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<tr>
<td>Slide locks or cylinder locking bottom bar w/mortise cylinder</td>
<td></td>
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<tr>
<td><strong>Finish options</strong></td>
<td></td>
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</tr>
<tr>
<td>Approximately 200 powder coat premium colors</td>
<td></td>
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</tr>
</tbody>
</table>

* FM reviews designs for openings over 18’ (5,486 mm) wide
** Information subject to change. Please call your local Overhead Door™ Distributor for special applications or if your application is not listed. All 635 Series doors are chain hoist minimum.
† Sound transmission classification.
The mineral wool insulation material used in FireKing® insulated fire doors is compressed within the steel slat, completely and uniformly filling the slat for maximum insulation. Overhead Door™ products provide consistent quality in design and performance.

**Color options**

- White
- Gray
- Tan
- Brown

PowderGuard® Premium powder coat paint finish is available in approximately 200 RAL colors, or may be color matched to architect’s specifications to best complement the look of the facility. PowderGuard® Zinc and PowderGuard® Textured finishes are also available.
## Door clearance elevations

**Operation:** crank, chain hoist, electric  
Chain hoist has only one sash chain located on drive side.

<table>
<thead>
<tr>
<th>Face-of-wall mounted</th>
<th>Between jambs mounted</th>
</tr>
</thead>
</table>

### Angle guide

**Face-of-wall mounted**  
**E guide**  
**Z guide**

### Between jambs mounted

**Drive Side - Electric, Chain or Crank**

Section B-B

Whenever expansion mounting bolts are used maintain a minimum of 6 bolt diameters from edge of wall.

**Tension side & push-up drive side**

Section C-C

Whenever expansion mounting bolts are used maintain a minimum of 6 bolt diameters from edge of wall.

* Add 7” for crank operation.

* Options may effect clearance dimensions.  
For more detailed information, consult your local Overhead Door™ Distributor.
Electric operators

Our broad line of electric operators suits new construction and retrofit applications, as well as unusual or special requirements. In order to improve safety and enhance door and motor life, industry quality assurance guidelines recommend the choice of a single manufacturer for both door and operator applications. Overhead Door® commercial operators are UL 325 2010 compliant.

Model RHX® FK
Model RHX® FK is a heavy duty motor featuring industrial gearbox in oil bath design. It offers unique features like LimitLock™, dual frequency radio system and 16 digit menu setup. Combined with FireKing® fire doors this system offers a unique floor resettable feature as well as providing for easy drop test and reset of fire door within seconds.

Model RSX® FDO
Model RHX® FDO is a standard duty motor specifically for fire door operation. While similar to RSX, this model has additional features including: floor level auto reset and timed delay of door drop upon alarm activation, automatic door open upon alarm reset, battery back-up and mechanical braking system.

Model RHX®
Model RHX® is a heavy duty commercial operator designed to operate doors up to 24' (7,315 mm) in height and 3696 pounds (1676 kg). Available as either a trolley, sidemount or centermount.

Model RSX®
Model RSX® is a standard duty commercial operator designed to operate doors up to 24' (7,315 mm) in height and 1620 pounds (735 kg). It offers unique features like LimitLock®, SuperBelt™ and 16 digit menu setup.

### Electric operator selection guide

<table>
<thead>
<tr>
<th>Horsepower</th>
<th>Max. area of door*</th>
<th>Super Belt™</th>
<th>Worm gear</th>
<th>Adjustable clutch</th>
<th>Totally enclosed</th>
<th>Continuous duty</th>
<th>Explosion proof</th>
<th>Mounting type</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHX® FK 1/2 HP 3/4 HP 1 HP</td>
<td>400 sq ft (37.161 sm)</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
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<td>● ● ● ●</td>
</tr>
<tr>
<td>RSX® FDO 1/2 HP 3/4 HP 1 HP</td>
<td>400 sq ft (37.161 sm)</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
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</tr>
<tr>
<td>RHX® 1/2 HP 3/4 HP 1 HP</td>
<td>480 sq ft (44.593 sm)</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>RSX® 1/2 HP 3/4 HP 1 HP</td>
<td>168 sq ft (15.608 sm)</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
<td>● ● ● ●</td>
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<td>● ● ● ●</td>
<td>● ● ● ●</td>
</tr>
</tbody>
</table>

Mounting options:
F=Front of hood  W= Wall mount  T= Top of hood
* Based on slat profile, gauge steel and overall weight of door. Contact Distributor for appropriate motor selection.

### Safety recommendations

We strongly recommend the use of interlock switches and an electric safety edge for all electrically operated rolling service doors. If a sensing edge or other reversing device is not installed, a constant-contact control switch must be used to close the door. We recommend a self-mounting, four-wire, fail-safe electric sensing device as defined by UL 325 2010. Contact your Overhead Door™ Distributor for more information.

With the optional selection of a commercial operator for the Fire Door system the floor resettable chain hoist is not available.

The automatic closing of the door must be tested at the time the door is installed, and the door shall be inspected and tested not less than annually as required by NFPA 80. This requirement applies to all fire doors – even those that are not used and remain in the closed position. The doors must be checked regularly for conditions that may affect the operation of the door.
WATER NOTES:

W4 INSTALL 2" TEE AND 2" VALVE, AND INSTALL 2" PE PIPE TO CONNECT TO (E) IRRIGATION (DETAIL 1/C4.2) AND 2" BACKFLOW ASSEMBLY (DETAIL 4/C4.3)

W5 INSTALL 1" QUICK COUPLING VALVE (RAINBIRD 44RC) IN VALVE BOX DETAIL 2/C4.3
NOTES:
1. WARNING: LID SHALL BE SECURED WITH AN APPROVED HUBBELL SADDLE.
2. ALL JOINTS SHALL BE SECURED WITH Joints Compounded OR Mortar Inside.
3. INSIDE JOINTS SHALL BE COMPOUNDED IN 1 1/2" PIPE WITH 1 1/2" PIPE IN ALL JOINTS.
4. OUTSIDE JOINTS SHALL BE MORTAR JEWELLED IN 1 1/2" PIPE WITH 1 1/2" PIPE IN ALL JOINTS.
5. IF AN ACCESSIBLE AREA IS USED, PLACE SUCH THAT THE OPENER IS OVER THE OPENING AREA.
6. WARNING: CEMENT IS THE ONLY FORM OF ACCESSIBLE AREA.
7. WARNED: HUBBELL SADDLE SHALL BE PROTECTED PER THE SANITARY SEWER SYSTEM STANDARDS.

CONCRETE COLLAR DETAIL

TOP SECTION SHOWN AS 48" MANHOLE, BOTTOM SECTION SHOWN AS 24" MANHOLE.

48" OR 72" MANHOLE

6" OR 7" MANHOLE

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

STANDARD SEWER MANHOLE

SCALE: 1"=2'-0" REVISED BY: KVR DATE: 3-7-2006

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

SEWER SERVICE CLEANOUT

SS-1

SS - 4

1. In non-traffic areas, metal A-Round Concrete Valve Box & Couplings Meeting or Exceeding the Standards of the Code Shall Be Used. A-Round Valve Box Shall Be Connected to the Sewer with a 2" Flexible Connect of the Code Shall Be Used. A-Round Valve Box Shall Be Connected to the Sewer with a 2" Flexible Panel (Hereinafter "Flexible Panel"), The Panel Shall Be a Minimum of 1" Schedule 80 Steel or equivalent.

2. A-Tube Foot Cap Valve Box Shall Be Installed, Specifying OF THE BACKFLOW PREVENTER ON UNDERGROUND PIPING.

3. CLEANOUT BOX TO BE FREE OF ALL DIRT AND READY AT TIME OF FINAL INSPECTION.

4. SERVICES OVER 10' LONG AND CONNECTORS Servicer shall supply if not connected with a fitting, The Cleanout Box Shall Be A Minimum of 18" Wide and 10" Deep.

5. CONNECTION TO MAIN SHALL BE WITH A FACTORY WELD.

6. BUILDING CONTRACTOR SHALL SET BOX TO FINISH GRADE AND INSTALL A-RE VIEW FLAT IF BELOW THE SURFACE PRIOR TO BUILDING PERMITS.

7. A POP-OFF RELIEF VALVE SHALL BE INSTALLED IN THE CAY OF ONE CLEANOUT LOCATION ON THE STREET SIDE OF THE MANHOLE PREVENTION. THE CLEANOUT Valves Shall Be Located IN A LOCATION THAT WILL NOT CAUSE DAMAGE TO THE SERVICE OR CONTAMINATION OF SURROUNDING AREA IF ACTIVATED.

8. FOR EXISTING SERVICES, SERVICE LINE DEPTH SHALL BE AS INDICATED. SERVICE LINE DEPTH SHALL BE A MINIMUM OF 30" FROM GROUND LEVEL TO SERVICE LINE.

9. PROVIDE UNION AND CONNECT TO EXISTING GAS SERVICE.

10. PROVIDE DRAINAGE TO PROTECT EXISTING GAS SERVICE LINE.

11. PROVIDE LOCATING WIRE PE TO STEEL TRANSITION COUPLING.

12. PROVIDE ANY PORTION OF GAS PIPE THAT IS UNDERGROUND BENEATH PROJECTION OF ROOF OR BUILDING SHALL COMPLY WITH CPC 1210.1.6.
5. UNIT PRICING

Contractor to provide unit pricing for the following items:

A. Price per square foot of (1,500) square feet of asphaltic concrete paving per sheet C4.6, detail 6 and the specifications:
   $______________________

B. Price per square foot of (100) square feet of concrete paving per sheet C4.6, detail 7 and the specifications:
   $______________________

C. Price per square foot of (100) square feet of concrete sidewalk per sheet C4.6, detail 5 and the specifications:
   $______________________

D. Price per cubic yard for removal and off-haul from site of (6) cubic yards subsurface rock:
   $______________________

E. Price per cubic yard for removal and off-haul from site of (15) cubic yards of unsuitable subgrade soils:
   $______________________

F. Price per cubic yard for removal and off-haul from site of (25) cubic yards of unsuitable subgrade soils:
   $______________________

G. Price per cubic yard for import, placement, and compaction of (15) cubic yards of suitable subgrade per details and specifications:
   $______________________

H. Price per cubic yard for import, placement, and compaction of (25) cubic yards of suitable subgrade per details and specifications:
   $______________________

I. Price per linear foot for fabrication and installation of (15) linear feet of guardrail with handrail per sheet A7.4 details A6 and G6 and specifications:
   $______________________

J. Price per linear foot for construction of utility trench including two 2” PVC conduits per sheet C4.2 detail 1, (left side “In Roadway”) and specifications:
   $______________________

K. Price per linear foot for installation of 1 1/2” PE gas piping per plans and specifications distributed as part of addendum # 004 based on 50 feet to 200 feet of piping, including connections, etc:
   $______________________
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

A. This Section includes gas-distribution piping and related components outside the building for gas service.

1.3 REFERENCES

A. Organization and Trade Standards

1. State of California, Department of Transportation (CalTrans), Standard Specifications as adopted by local jurisdictional authority, latest edition, including amendments.

2. ANSI B31.8 Code of Pressure Piping "Gas Transmission and Distribution Piping System"


1.4 DEFINITIONS

AGA(IAS) American Gas Association (International Approval Services)
ANSI American National Standards Institute
BTU British Thermal Unit
BTUH British Thermal Unit per Hour
CCF Hundred Cubic Feet
CF Cubic Foot
CFH Cubic Foot per Hour
MCF Thousand Cubic Feet
PE Polyethylene plastic
PSIG Pounds per Square Inch Gauge
UL Underwriters Laboratories
WC Pressure in Inches of Water Column
1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For gas valves and specialties to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Comply with requirements of utility company supplying gas.
   2. Comply with ASTM D2513 for selection, design, and installation of polyethylene (PE) gas pressure pipe, tubing and fittings.
   3. NFPA Compliance: Comply with NFPA 54 for materials, installations, and tests for safe installation and operation of gas-service-main piping systems

1.7 DELIVERY, STORAGE, AND HANDLING

A. During Storage: Use precautions for valves, according to the following:
   1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
   2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
   3. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

B. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.

C. Protect flanges, fittings, and specialties from moisture and dirt.

D. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.
1.8 PROJECT CONDITIONS

A. Interruption of Existing Gas-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted.

1.9 COORDINATION

B. Coordinate connection to gas main with utility company.

PART 2 - PRODUCTS

2.1 PE PIPE AND FITTINGS

A. PE Pipe: ASTM D2513
   1. PE, tubing shall be JM Eagle UAC 2000 MDPE yellow gas pipe, or approved equal.
   2. Polytetrafluoroethylene (PTFE) pipe must be medium density or higher.
   3. Fittings and method of joining must be approved by Owner. PE pipe can be joined by heat fusion, electrofusion, or mechanical fittings. Only properly trained and qualified personnel should make fusions.
   4. Install with a #12 wire brought above ground and wrapped around the riser pipe for locating purposes.

2.2 STEEL PIPE AND FITTINGS

3. Joints: ASME B31.9, welded for 3” and larger; threaded for 2” and smaller
4. All steel surfaces in contact with soil must be mill or field cleaned, primed and wrapped/coated with materials and methods approved by Owner.
5. Approved fittings that electrically insulate buried steel from building piping must be installed. Magnesium anodes of the proper size and quantity must be attached to all underground steel lines.
6. All steel gas lines must be assembled using thread sealant suitable for natural gas. Sweat fittings are not permitted.
7. All outside steel piping shall be painted in accordance with a paint recommended by the paint manufacturer for use on outside steel and applied per the paint manufacturer’s specifications.

2.3 MANUAL SHUT-OFF VALVES (ABOVE GROUND)

1. NPS 4 and under, full port, forged brass ball valve for two piece body construction
2. Blowout-proof stem.
3. Adjustable packing gland.
4. Chrome-plated ball.
Ag Building Modernization

5. Class 150 WSP, 600 WOG.
6. Lever handle
7. ANSI B1.20.1 NPT end connections

2.4 PE BALL VALVES (UNDERGROUND)
1. 2” IPS (manufacturer: R. W. Lyall or approved equal)
2. Conforming to ASTM D2513, ASME B16.40, CFR 49, PART 192, and CSA B137.4
3. Full Port Ball Valve design
4. Butt fusion valve ends.
5. Quarter turn clockwise close operation with stops for torque protection.
6. design pressure 60 psig at design temperature of 140deg F.
7. 2-inch square nut operating head (for underground)

2.5 VALVE BOXES:
1. Cast-iron, two-section box.
2. Top section with cover with "GAS" lettering.
3. Bottom section with base to fit over valve and barrel a minimum of 5 inches in diameter

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Install PE pipe according to ASTM D2513. Conduct all work in accordance with Caltrans Standard specifications.

B. Bury piping with depth of cover over top at least 24 inches.

C. Extend gas-service piping and connect to gas-supply source and building-gas-piping systems at locations and pipe sizes indicated.

D. Pipe passing through outer walls above ground must be sleeved with pvc or thoroughly wrapped with electrical tape. Pipe passing through masonry walls below ground must be installed in an approved gas and water tight sleeve.

E. Fuel lines must be supported or strapped and must be plum and square.

F. Pipe should be buried far enough away from steam lines, hot water lines, power lines and other sources of heat to avoid temperature pressure combinations in excess of those permitted by the pressure rating.

G. Only properly trained and qualified personnel should make fusions. Fusion procedure shall be performed in accordance with manufacturer’s recommendations and guidelines.
H. Each appliance shall be provided with a shutoff valve separate from the appliance. The shutoff valve shall be located in the same room as the appliance, not further than 6 feet from the appliance, and shall be installed upstream from the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access.

I. Trench bottom must be level, rock free and deep enough to provide a minimum of 24" cover above the pipe.

J. Sand padding with suitable rock free material is required 4 inches below and 12 inches on top of the pipe.

K. Pipe in the trench must not be in contact with or any closer than 12 inches to any other underground structure, cable, or pipe.

L. Backfill material must be free of rocks.

M. After installation, an as-built sketch must be provided to Owner for mapping purposes.

3.2 FIELD QUALITY CONTROL

A. Contractor shall submit to the Owner a written Testing plan that addressed the proposed steps and procedures to be utilized. The plan shall be submitted a minimum of five working days prior to commencement of the procedures.

B. Pressure Testing: All gas lines must be pressure tested for leakage in accordance with the following guidelines:
1. 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 test period. The source of pressure shall be isolated before the pressure tests are made.
2. The test pressure shall be no less than 1 1/2 times the proposed maximum working pressure, or 50 psig, whichever is greater, for a minimum of 15 minutes.
3. Written certification of fuel line tests must be submitted to Owner.

C. Inspection by the Owner prior to backfill is required. All materials including but not limited to pipe, couplings, transition fittings, risers and methods of joining must be approved by Owner.

D. Prepare reports of testing activities.

3.3 IDENTIFICATION

A. Install continuous underground, detectable warning tape during backfilling of trench for underground gas-distribution piping. Locate as shown on the drawings.

END OF SECTION 22 11 20