

**SECTION 08360 UPWARD ACTING SECTIONAL DOORS**

**WORK INCLUDED**

- A. Provide & install overhead doors where indicated on the drawings to include all materials, labor, installations, components, hangers, blocking, supports, motors, switches, etc. for complete installation of doors. All connections, supports, etc. shall be provided and installed by the door installer. Door installer to verify minimum headroom clearance.

**PRODUCTS**

1. Doors:
  - a. Doors shall be steel sectional overhead commercial/TM-300 series as manufactured by Raynor Garage Doors or equal.
  - b. Sections shall be 2" thick raised panel wood grain embossed commercial quality hot dip galvanized G60 steel per ASTM A-525 and A-526. Door sections constructed of 20 gauge wood grain textured embossed raised panel design colonial design, exterior and standard 26 gauge interior skins, mechanically interlocked and pressure bonded to a 1-7/8" thick expanded polystyrene core. Interior and exterior skins to be separated by a continuous dual durometer vinyl extrusion to form an effective thermal break and a complete weather-tight seal along section joint. Thermal break extrusion to be held in place by means of a mechanical interlock. End stiles to be minimum 14 gauge, separated from exterior skin with vinyl thermal break.
  - c. Finish - Exterior and interior of door skins pre-coated prior to roll forming with a two coat process of baked on polyester enamel finish over epoxy primer. Base bid color shall be white.
  - d. Weatherstripping - Door shall be furnished with complete weatherstripping system to reduce air infiltration. Top of door provided with EPDM rubber sealing strips. Bottom of door to have flexible U-shaped vinyl seal encased in extruded aluminum retainer to conform to irregularities in floor. Optional jamb seal to be EPDM rubber blade type attached to track angle mounting with rigid vinyl snap-on extrusion. Weatherstripping to be replaceable without removal of track, angle mounting, or door hardware. Maximum air leakage per foot of door perimeter (floor, jamb and header) shall not exceed .81 CFM @ 25 M.P.H. No air leakage shall be detected between section joints when tested in accordance with ASTM E-283.
  - e. Tracks - Galvanized track 3". Tracks to have Graduated Seal for weathertight closing. Tracks to be bracket mounted or continuous angle mounted and fully adjustable for sealing door to jamb. Continuous angle size to be not less than 2-

5/16" x 5" x 3/32" on 2" track. Horizontal track to be adequately reinforced with continuous angle. Use low head room track if required by clearance.

- f. Hardware - All hinges and brackets made from galvanized steel. Track rollers shall have ten 1/4" diameter hardened steel balls per roller (2") (Series TC), seven 1/4" diameter steel balls (TC-II) and ten 5/16" diameter hardened steel balls per roller (3").
  - g. Spring Counterbalance - Heavy duty oil tempered wire torsion springs on continuous ball bearing cross header shaft. Galvanized aircraft type lifting cables with minimum safety factor of 5 to 1.
  - h. Wind Load – Doors designed to withstand 20lbs. per sq. ft. Deflection of door in horizontal position to be maximum 1/120<sup>th</sup> of door width. Contact Raynor Engineering for details.
  - i. Glazing - Lite inserts to be 16" x 34" thermal type, 5/8" insulated glass. Glass unit to be encased in one piece vulcanized EPDM rubber frame. DSB, 1/4" clear or wire glass. Layout of lites to be as per project elevations.
  - j. Framing - Door jambs and mounting pads to be furnished by other than door installer.
  - k. Insulating Value - Section set shall have overall installed R-value of 9.17 as tested in accordance with ASTM C-236.
  - l. Five Year Delamination and Twenty Year Insulation Limited Warranties – In addition to the Raynor one year limited warranty, and subject to the conditions and limitations, stated in that warranty, doors shall be free from delamination of the expanded polystyrene insulation and its exterior and interior skins for five years from installation date. The expanded polystyrene will maintain its R-value for twenty years from installation date as tested in accordance with ASTM C-236.
2. Motors:
- a. Operator shall be trolley type Model RBT as manufactured by Raynor Garage Doors 1/2 H.P., 115 V. or equal.
  - b. Trolley - Trolley rail shall consist of two 2" (50.8 mm) x 2" (50.8 mm) x 11 gauge galvanized steel angles to 14' (4267 mm) high or 2" (50.8 mm) x 2" (50.8 mm) x 10 gauge over 14' (4267 mm) high.
  - c. Motor - Provide a continuous duty capacitor start motor. Specify 115V or 230V single phase, 230V or 460V three phase. Motor shall be separate from reduction mechanism for ease of maintenance.

- d. Reduction - Furnish V-belt drive from motor to full ball bearing power train with additional reduction by chain and sprockets. All power train shafts shall be minimum 3/4" (19 mm) diameter.
  - e. Roller Chain Drive – Door shall be driven by roller chain at 6" (15.2 mm) to 12" (30.4 mm) per second.
  - f. Adjustable Friction Clutch - Shall be provided to protect door and operator if door movement is obstructed.
  - g. Starter-Reversing Contractor Type - Furnish heavy duty across the line reversing type with mechanical interlock.
  - h. Limit Switches - Provide positive chain drive screw type limit switch, enclosed in electrical control box, easily accessible for precision setting. 3 sets of cam operate limit switches for each door.
  - i. Control Wiring - Control voltage shall be 24 volts for safety.
  - j. Overload Protection - Provide manual reset for overload protection.
  - k. Electrical Enclosure - All electrical components shall be in NEMA 1 enclosure.
  - l. Emergency Operation - A disconnect shall be provided so door can be manually operated.
  - m. Magnetic Brake - Furnish a magnetic solenoid brake for positive stop.
3. Controls:
- a. All controls shall be 24 volts and shall include contactors as follows:
    - OPEN: 2 Normal Open, 2 Normal Closed
    - STOP: 2 Normal Open, 2 Normal Closed
    - CLOSE: 2 Normal Open, 2 Normal Closed
  - b. Provide open, close, stop 3 button recess station at each door.
  - c. Provide radio control operation for all doors.
  - d. Provide bottom safety edge control reversing edge.
  - e. Coordinate and provide additional contactors as required for interlock with HVAC controls. Coordinate with Mechanical Contractor.

### QUALITY ASSURANCE

1. Install door in accordance with Raynor Door Corporation instructions and standards, using an authorized distributor.

### SUBMITTALS

1. Submit complete detailed shop drawings for the entire installation.
2. Submit sample of door components.