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SECTION 14120

ELECTRIC DUMBWAITERS

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## PART 1 GENERAL

### 1.1 SECTION INCLUDES

- A. Electric Dumbwaiters.

### 1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Hoistway framing, building-in hoistway door frames and overhead hoist beams.
- B. Section 05500 - Metal Fabrications: Miscellaneous supports.
- C. Section 07724 - Roof Hatches: Smoke venting hatch at top of hoistway.
- D. Section 08210 - Wood Doors: Hoistway doors.
- E. Section 08310 - Access Doors and Panels: Fire rated access doors into hoistway.
- F. Section 08710 - Door Hardware.
- G. Section 09260 - Gypsum Board Assemblies: Gypsum shaft walls.
- H. Section 13850 - Detection and Alarm: Fire and smoke detectors and interconnecting devices.
- I. Division 16 - Electrical:
  - 1. Electrical characteristics and wiring connections.
  - 2. Electrical service to lockable fused disconnect in elevator machine room.
  - 3. Electrical service for machine room, machine room convenience outlets, and lighting in elevator pit.

### 1.3 REFERENCES

- A. ASME A17.1 - Safety Code for Elevators and Escalators; Part 7 - Dumbwaiters and Material Lifts.
- B. ASME A17.2 - Inspector's Manual for Electric Elevators.

#### 1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Conform with ASME A17.1 and to applicable code for manufacture and installation of dumbwaiter system.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and indicated.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- 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. Installation methods.
- C. Shop Drawings: Include the following.
  - 1. Machine, controller, selector, and other component locations.
  - 2. Car, sheaves, machine, guide rails, buffers, ropes, and other components in hoistway.
  - 3. Rail bracket spacing; maximum loads imposed on guide rails requiring load transfer to building structural framing.
  - 4. Individual weight of principal components; load reaction at points of support.
  - 5. Clearances and overall travel of car.
  - 6. Locations in hoistway and machine room of traveling cables.
  - 7. Location and sizes of access doors, doors, and frames.
  - 8. Electrical characteristics and connection requirements.
  - 9. Show arrangement of equipment in machine room so rotating elements and other equipment can be removed for repairs or replaced without disturbing other components. Arrange equipment for clear passage through access door.
- 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 3 inches (76 mm) square, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing Work of this section and approved by dumbwaiter manufacturer.

#### 1.7 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to start of work of this section.
- B. Review hoistway, electrical, fire alarm and other requirements with appropriate representatives.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store materials, indoors and under cover, in accordance with requirements of the manufacturer.

#### 1.9 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

#### 1.10 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.

#### 1.11 WARRANTY

- A. Provide manufacturer's standard two year limited warranty.
- B. Provide manufacturer's standard five year limited warranty.

#### 1.12 MAINTENANCE SERVICE

- A. Furnish a service and maintenance agreement from the installer for dumbwaiter system and components for two years from Date of Substantial Completion.
- B. Include systematic examination and adjustment of dumbwaiter equipment. Repair or replace parts whenever required. Use parts produced by manufacturer of original equipment. Replace drive belts when necessary to maintain required factor of safety.
- C. Include emergency call back service for this maintenance period.
- D. Include maintenance work using competent and qualified personnel approved by dumbwaiter manufacturer or original installer.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Butler Mobility Products, which is located at: 629 Lowther Rd. #C ; Lewisberry, PA 17339 ; Toll Free Tel: 888-847-0804; Tel: 717-854-7720; Email: [request info](#); Web: [www.butlermobility.com](http://www.butlermobility.com)
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

#### 2.2 DUMBWAITERS

- A. Ultralite, Model 1000:
  - 1. Capacity: 100 lbs.
  - 2. Standard Car size:

- a. Width: 12 inches.
  - b. Depth: 15 inches.
  - c. Height 12 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 30 to 36 inches.
  6. Speed: 21 feet per minute.
  7. Voltage (Standard): 115 VAC.
  8. Motor HP: 1/6 hp.
  9. Power Requirements:
    - a. A Separate 115-Volt, 20 Amp manual disconnect circuit is required.
  10. Interlocks (required): Included at each opening.
  11. Metal Car:
    - a. Material Steel, 16 gauge, powder coated, gray color.
  12. Car Gates:
    - a. Vertical rising vinyl curtain.
  13. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 12 inch by 12 inch steel doors shop primed.
    - b. Doors and Frames: As specified in Section \_\_\_\_\_.
  14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  15. Brake: Self-braking transmission.
  16. Drive System: 5 mm by 25 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  17. Slack Cable Device.
  18. Redundant top and bottom limit switches.
  19. UL Certified Controller.
  20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  21. Car light.
  22. Shaft access doors.
    - a. Hinged, UL rated B label, 12 inch by 12 inch steel doors shop primed.
    - b. As specified in Section \_\_\_\_\_.
  23. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- B. Lite, Model 2000:
1. Capacity: 175 lbs.
  2. Standard Car size:
    - a. Width: 24 inches.
    - b. Depth: 24 inches.
    - c. Height 24 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 30 to 36 inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  8. Counterweight: Steel as recommended by the manufacturer.
  9. Motor HP: 1/4 hp.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.

- b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
  - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
  - e. A separate manual disconnect circuit is required.
11. Interlocks (required): Included at each opening.
12. Wood Car:
- a. Material: Cabinet grade birch plywood.
    - 1) Finish: Natural as selected by the Architect.
    - 2) Finish: Stainless steel foil liner.
  - b. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
13. Metal Car:
- a. Material: Stainless Steel.
  - b. Shelves:
    - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
    - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
    - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  - c. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
14. Hoistway Doors and Frames:
- a. Doors and Frames: Hinged, UL rated, B label, 24 inch by 24 inch steel doors shop primed.
  - b. Doors and Frames: Hinged, UL rated, B label, 24 inch by 24 inch fire rated, stainless steel doors.
  - c. Doors and frames as specified in Section \_\_\_\_\_.
15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
16. Brake: Self-braking transmission.
17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
18. Slack Cable Device.
19. Redundant top and bottom limit switches.
20. UL Certified Controller.
21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
22. Car light.
23. Shaft access doors.
- a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
  - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
  - c. As specified in Section \_\_\_\_\_.
24. Clearance: Provide the following clearance for the machine configuration required:
- a. Machine Below Car: 16 inches below bottom of car.
  - b. Machine Overhead Car: 13 inches above top of car.
- C. Medium, Model 3000:
- 1. Capacity: 250 lbs.
  - 2. Standard Car size:
    - a. Width: 30 inches.
    - b. Depth: 30 inches.

- c. Height 30 inches.
- 3. Maximum Travel: 100 feet.
- 4. Stops: \_\_\_\_\_.
- 5. Standard Height: 30 to 36 inches.
- 6. Speed: 21 feet per minute.
- 7. Voltage:
  - a. 115 VAC.
  - b. 208 VAC.
  - c. 230 VAC.
- 8. Motor HP: 1/3 hp.
- 9. Counterweight: Steel as recommended by the manufacturer.
- 10. Power Requirements:
  - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
  - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
  - e. A separate manual disconnect circuit is required.
- 11. Interlocks (required): Included at each opening.
- 12. Wood Car:
  - a. Material: Cabinet grade birch plywood.
    - 1) Finish: Natural as selected by the Architect.
    - 2) Finish: Stainless steel foil liner.
  - b. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
- 13. Metal Car:
  - a. Material: Stainless Steel.
  - b. Shelves:
    - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
    - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
    - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  - c. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
- 14. Hoistway Doors and Frames:
  - a. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch, steel doors shop primed.
  - b. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch, stainless steel doors.
  - c. Doors and frames as specified in Section \_\_\_\_\_.
- 15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
- 16. Brake: Self-braking transmission.
- 17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
- 18. Slack Cable Device.
- 19. Redundant top and bottom limit switches.
- 20. UL Certified Controller.
- 21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
- 22. Car light.
- 23. Shaft access doors.

- a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
  - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
  - c. As specified in Section \_\_\_\_\_.
24. Clearance: Provide the following clearance for the machine configuration required:
- a. Machine Below Car: 16 inches below bottom of car.
  - b. Machine Overhead Car: 13 inches above top of car.
- D. Medium HD, Model 3000:
1. Capacity: 350 lbs.
  2. Standard Car size:
    - a. Width: 30 inches.
    - b. Depth: 30 inches.
    - c. Height 30 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 30 to 36 inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  8. Motor HP: 1/2 hp, dual belt.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
    - c. Material: Stainless Steel.
    - d. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
    - e. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  13. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch, steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch, stainless steel doors.

- c. Doors and frames as specified in Section \_\_\_\_\_.
  - 14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  - 15. Brake: Self-braking transmission.
  - 16. 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  - 17. Slack Cable Device.
  - 18. Redundant top and bottom limit switches.
  - 19. UL Certified Controller.
  - 20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  - 21. Car light.
  - 22. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  - 23. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- E. Heavy Duty, Model 4000:
- 1. Capacity: 350 lbs.
  - 2. Standard Car size:
    - a. Width: 36 inches.
    - b. Depth: 36 inches.
    - c. Height 48 inches.
  - 3. Maximum Travel: 100 feet.
  - 4. Stops: \_\_\_\_\_.
  - 5. Standard Loading Height: 48 inches.
  - 6. Speed: 21 feet per minute.
  - 7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  - 8. Motor HP: 1/2 hp, dual belt.
  - 9. Counterweight: Steel as recommended by the manufacturer.
  - 10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  - 11. Interlocks (required): Included at each opening.
  - 12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  - 13. Metal Car:
    - a. Material: Stainless Steel.
    - b. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.

- 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
    - c. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  - 14. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 36 inch by 48 inch steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 36 inch by 48 stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  - 15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  - 16. Brake: Self-braking transmission.
  - 17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  - 18. Slack Cable Device.
  - 19. Redundant top and bottom limit switches.
  - 20. UL Certified Controller.
  - 21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  - 22. Car light.
  - 23. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  - 24. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- F. Food Service 24, Model 5000:
- 1. Capacity: 175 lbs.
  - 2. Standard Car size:
    - a. Width: 18 inches.
    - b. Depth: 26 inches.
    - c. Height 24 inches.
  - 3. Maximum Travel: 100 feet.
  - 4. Stops: \_\_\_\_\_.
  - 5. Standard Loading Height: 30 to 36 inches.
  - 6. Speed: 21 feet per minute.
  - 7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  - 8. Motor HP: 1/4 hp.
  - 9. Counterweight: Steel as recommended by the manufacturer.
  - 10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.

11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  13. Metal Car:
    - a. Material: Stainless Steel.
    - b. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
    - c. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  14. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 24 inch by 48 inch steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 24 inch by 48 inch stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  16. Brake: Self-braking transmission.
  17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  18. Slack Cable Device.
  19. Redundant top and bottom limit switches.
  20. UL Certified Controller.
  21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  22. Car light.
  23. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  24. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- G. Food Service 48 HD, Model 5000:
1. Capacity: 250 lbs.
  2. Standard Car size:
    - a. Width: 18 inches.
    - b. Depth: 26 inches.
    - c. Height 24 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 30 to 36 inches.
  6. Speed: 21 feet per minute.

7. Voltage:
  - a. 115 VAC.
  - b. 208 VAC.
  - c. 230 VAC.
8. Motor HP: 1/3 hp.
9. Counterweight: Steel as recommended by the manufacturer.
10. Power Requirements:
  - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
  - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
  - e. A separate manual disconnect circuit is required.
11. Interlocks (required): Included at each opening.
12. Wood Car:
  - a. Material: Cabinet grade birch plywood.
    - 1) Finish: Natural as selected by the Architect.
    - 2) Finish: Stainless steel foil liner.
  - b. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
13. Metal Car:
  - a. Material: Stainless Steel.
  - b. Shelves:
    - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
    - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
    - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  - c. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
    - 3) Stainless steel roll top gate.
14. Hoistway Doors and Frames:
  - a. Painted, steel doors shop primed.
  - b. Doors and Frames: Hinged, UL rated, B label, 24 inch by 48 inch fire rated, stainless steel doors.
  - c. Doors and frames as specified in Section \_\_\_\_\_.
15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
16. Brake: Self-braking transmission.
17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
18. Slack Cable Device.
19. Redundant top and bottom limit switches.
20. UL Certified Controller.
21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
22. Car light.
23. Shaft access doors.
  - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
  - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
  - c. As specified in Section \_\_\_\_\_.
24. Clearance: Provide the following clearance for the machine configuration required:
  - a. Machine Below Car: 16 inches below bottom of car.

- b. Machine Overhead Car: 13 inches above top of car.
- H. Food Service 48, Model 6000:
1. Capacity: 175 lbs.
  2. Standard Car size:
    - a. Width: 18 inches.
    - b. Depth: 26 inches.
    - c. Height 48 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 30 to 36 inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  8. Motor HP: 1/4 hp.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  13. Metal Car:
    - a. Material: Stainless Steel.
    - b. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
    - c. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  14. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 24 inch by 48 inch fire rated, steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 24 inch by 48 inch fire rated, stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  16. Brake: Self-braking transmission.
  17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.

18. Slack Cable Device.
  19. Redundant top and bottom limit switches.
  20. UL Certified Controller.
  21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  22. Car light.
  23. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  24. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
      - 1) Clearance Above Car: \_\_\_ inches.
    - b. Machine Overhead Car: 13 inches above top of car.
      - 1) Clearance Below Car: \_\_\_ inches.
      - 2) Clearance Below Car: 3 inches.
- I. Food Service 24 HD, Model 6000:
1. Capacity: 250 lbs.
  2. Standard Car size:
    - a. Width: 18 inches.
    - b. Depth: 26 inches.
    - c. Height 24 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 24 inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  8. Motor HP: 1/3 hp.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  13. Metal Car:
    - a. Material: Stainless Steel.
    - b. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.

- 3) Removable aluminum shelves as indicated on the Drawings.
    - c. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  - 14. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 36 inch by 25 inch fire rated, steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 36 inch by 25 inch fire rated, stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  - 15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  - 16. Brake: Self-braking transmission.
  - 17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  - 18. Slack Cable Device.
  - 19. Redundant top and bottom limit switches.
  - 20. UL Certified Controller.
  - 21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  - 22. Car light.
  - 23. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  - 24. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
      - 1) Clearance Above Car: \_\_\_ inches.
    - b. Machine Overhead Car: 13 inches above top of car.
      - 1) Clearance Below Car: \_\_\_ inches.
      - 2) Clearance Below Car: 3 inches.
- J. Corner 24, Model 7000:
- 1. Capacity: 175 lbs.
  - 2. Standard Car size:
    - a. Width: 24 inches.
    - b. Depth: 24 inches.
    - c. Height 24 inches.
  - 3. Maximum Travel: 100 feet.
  - 4. Stops: \_\_\_\_\_.
  - 5. Standard Loading Height: 24 inches.
  - 6. Speed: 21 feet per minute.
  - 7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  - 8. Motor HP: 1/4 hp.
  - 9. Counterweight: Steel as recommended by the manufacturer.
  - 10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.

11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: \_\_\_\_\_.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
    - c. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  13. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, 24 inch by 24 inch fire rated, steel doors shop painted.
    - b. Doors and Frames: Hinged, 24 inch by 24 inch fire rated, stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  15. Brake: Self-braking transmission.
  16. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  17. Slack Cable Device.
  18. Redundant top and bottom limit switches.
  19. UL Certified Controller.
  20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  21. Car light.
  22. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  23. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- K. Corner 24 HD, Model 7000:
1. Capacity: 250 lbs.
  2. Standard Car size:
    - a. Width: 24 inches.
    - b. Depth: 24 inches.
    - c. Height 24 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 24 inches.
  6. Speed: 21 feet per minute.
  7. Voltage (Standard): 230 VAC.
  8. Motor HP: 1/3 hp.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and

- d. 20 amp time delay fuse.
  - e. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
  - f. A separate manual disconnect circuit is required.
11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: \_\_\_\_\_.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
    - c. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  13. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 24 inch by 24 inch steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 24 inch by 24 inch stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  15. Brake: Self-braking transmission.
  16. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  17. Slack Cable Device.
  18. Redundant top and bottom limit switches.
  19. UL Certified Controller.
  20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  21. Car light.
  22. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  23. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- L. Corner 30, Model 8000:
1. Capacity: 175 lbs.
  2. Standard Car size:
    - a. Width: 30 inches.
    - b. Depth: 30 inches.
    - c. Height 30 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: 24 inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.

8. Motor HP: 1/4 hp.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: \_\_\_\_\_.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
    - c. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
  13. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch steel doors shop primed.
    - b. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch stainless steel doors.
    - c. Doors and frames as specified in Section \_\_\_\_\_.
  14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  15. Brake: Self-braking transmission.
  16. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  17. Slack Cable Device.
  18. Redundant top and bottom limit switches.
  19. UL Certified Controller.
  20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  21. Car light.
  22. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  23. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
    - b. Machine Overhead Car: 13 inches above top of car.
- M. Corner 30 HD, Model 8000:
1. Capacity: 250 lbs.
  2. Standard Car size:
    - a. Width: 30 inches.
    - b. Depth: 30 inches.
    - c. Height 30 inches.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.

5. Standard Loading Height: 30 inches.
6. Speed: 21 feet per minute.
7. Voltage:
  - a. 115 VAC.
  - b. 208 VAC.
  - c. 230 VAC.
8. Motor HP: 1/3 hp.
9. Counterweight: Steel as recommended by the manufacturer.
10. Power Requirements:
  - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
  - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
  - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
  - e. A separate manual disconnect circuit is required.
11. Interlocks (required): Included at each opening.
12. Wood Car:
  - a. Material: Cabinet grade birch plywood.
    - 1) Finish: Natural as selected by the Architect.
    - 2) Finish: \_\_\_\_\_.
  - b. Car Gates:
    - 1) Vertical rising vinyl curtain.
    - 2) Bi-parting aluminum gate with steel springs.
  - c. Shelves:
    - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
    - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
    - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
13. Hoistway Doors and Frames:
  - a. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch steel doors shop primed.
  - b. Doors and Frames: Hinged, UL rated, B label, 30 inch by 30 inch stainless steel doors.
  - c. Doors and frames as specified in Section \_\_\_\_\_.
14. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
15. Brake: Self-braking transmission.
16. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
17. Slack Cable Device.
18. Redundant top and bottom limit switches.
19. UL Certified Controller.
20. Call-Send Stations: Momentary contact call/send push buttons at each landing.
21. Car light.
22. Shaft access doors.
  - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
  - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
  - c. As specified in Section \_\_\_\_\_.
23. Clearance: Provide the following clearance for the machine configuration required:
  - a. Machine Below Car: 16 inches below bottom of car.
  - b. Machine Overhead Car: 13 inches above top of car.

N. Custom Model 9000:

1. Capacity:

- a. 175 lbs.
  - b. 225 lbs.
  - c. 250 lbs.
2. Car size:
    - a. Width: \_\_\_ inches.
    - b. Depth: \_\_\_ inches.
    - c. Height \_\_\_ inches.
    - d. Configure for food carts.
  3. Maximum Travel: 100 feet.
  4. Stops: \_\_\_\_\_.
  5. Standard Loading Height: \_\_\_ inches.
  6. Speed: 21 feet per minute.
  7. Voltage:
    - a. 115 VAC.
    - b. 208 VAC.
    - c. 230 VAC.
  8. Motor HP:
    - a. 1/4 hp.
    - b. 1/3 hp.
    - c. 1/2 hp with dual belt.
  9. Counterweight: Steel as recommended by the manufacturer.
  10. Power Requirements:
    - a. 115-Volt, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - b. 230 Volt, 30 Amp, Single Phase, 60 Hertz with 20 amp time delay fuse.
    - c. 208 Volt, Single Phase Supply requires a power boost transformer and 20 amp time delay fuse.
    - d. 208 Volt, Three Phase, 60 Hertz with 20 amp time delay fuse.
    - e. A separate manual disconnect circuit is required.
  11. Interlocks (required): Included at each opening.
  12. Wood Car:
    - a. Material: Cabinet grade birch plywood.
      - 1) Finish: Natural as selected by the Architect.
      - 2) Finish: Stainless steel foil liner.
    - b. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  13. Metal Car:
    - a. Material: Stainless Steel.
    - b. Shelves:
      - 1) Fixed Stainless Steel shelf as indicated on the Drawings.
      - 2) Removable adjustable Stainless Steel shelves as indicated on the Drawings.
      - 3) Removable adjustable aluminum shelves as indicated on the Drawings.
    - c. Car Gates:
      - 1) Vertical rising vinyl curtain.
      - 2) Bi-parting aluminum gate with steel springs.
      - 3) Stainless steel roll top gate.
  14. Hoistway Doors and Frames:
    - a. Doors and Frames: Hinged, UL rated, B label, steel doors shop primed.
      - 1) 12 inch by 12 inch.
      - 2) 18 inch by 18 inch.
      - 3) 18 inch by 24 inch.
      - 4) 22 inch by 30 inch.
      - 5) 22 inch by 36 inch.

- 6) 24 inch by 24 inch.
  - 7) 24 inch by 30 inch.
  - 8) 24 inch by 36 inch.
  - 9) 24 inch by 48 inch.
  - 10) 30 inch by 30 inch.
  - 11) 30 inch by 36 inch.
  - 12) 30 inch by 48 inch.
  - 13) 36 inch by 36 inch.
  - 14) 26 inch by 48 inch.
- b. Doors and Frames: Hinged, UL rated, B label, stainless steel doors.
    - 1) 12 inch by 12 inch.
    - 2) 18 inch by 18 inch.
    - 3) 18 inch by 24 inch.
    - 4) 22 inch by 30 inch.
    - 5) 22 inch by 36 inch.
    - 6) 24 inch by 24 inch.
    - 7) 24 inch by 30 inch.
    - 8) 24 inch by 36 inch.
    - 9) 24 inch by 48 inch.
    - 10) 30 inch by 30 inch.
    - 11) 30 inch by 36 inch.
    - 12) 30 inch by 48 inch.
    - 13) 36 inch by 36 inch.
    - 14) 26 inch by 48 inch.
  - c. Doors and frames as specified in Section \_\_\_\_\_.
- 15. Guide Rails: 3-5/8 inch by 1-5/8 inch heavy gauge steel.
  - 16. Brake: Self-braking transmission.
  - 17. Drive System: 8 mm by 30 mm drive belt, marlin coated wire rope cable with molded urethane jacket.
  - 18. Slack Cable Device.
  - 19. Redundant top and bottom limit switches.
  - 20. UL Certified Controller.
  - 21. Call-Send Stations: Momentary contact call/send push buttons at each landing.
  - 22. Car light.
  - 23. Shaft access doors.
    - a. Hinged, UL rated B label, 18 inch by 18 inch steel doors shop primed.
    - b. Hinged, UL rated B label, 18 inch by 18 inch stainless steel doors.
    - c. As specified in Section \_\_\_\_\_.
  - 24. Clearance: Provide the following clearance for the machine configuration required:
    - a. Machine Below Car: 16 inches below bottom of car.
      - 1) Clearance Above Car: \_\_\_ inches.
    - b. Machine Overhead Car: 13 inches above top of car.
      - 1) Clearance Below Car: \_\_\_ inches.
      - 2) Clearance Below Car: 3 inches.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until preliminary work including hoistway, landings and machine space has been properly prepared.
- B. Verify hoistway and openings are of correct size and within tolerance.
- C. Verify electrical power is available and of correct characteristics.

- D. If preliminary work 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 ASME A17.1 Part 7 and the manufacturer's instructions.
- B. Install system components. Connect equipment to building utilities.
- C. Install conduit, boxes, wiring, and accessories.
- D. Isolate machine on structural supports and bearing plates. Securely fasten to building supports. Prevent lateral displacement.
- E. Accommodate equipment in space indicated.
- F. Install guide rails using threaded bolts and lock washers under nuts.
- G. Accurately align guide rails. Form smooth joints with machined splice plates.
- H. Bolt brackets directly to hoistway framing.
- I. Coordinate installation of hoistway wall construction.
- J. Install hoistway doors, sills, frames, and headers in hoistway walls.
- K. Set entrances in vertical alignment with car openings and aligned with plumb hoistway lines.
- L. Coordinate installation of hoistway door hardware. Install interlocks as required.
- M. Adjust equipment for smooth and quiet operation.

### 3.4 FIELD QUALITY CONTROL

- A. Perform tests required by ASME A17.2.
- B. Provide two weeks written notice of date and time of tests.
- C. Supply instruments and execute specific tests.
- D. Perform following tests in presence of Architect:
  - 1. Test dumbwaiter system by transporting the rated load up from main floor during five minute period.
  - 2. At an agreed time during contract warranty period, and with building normally occupied using normal building traffic, conduct tests to verify performance.
  - 3. Time dumbwaiter travel between typical floors at not more than rated travel time. Measure time from moment doors start to close until car has stopped level at next floor and doors are opening.

### 3.5 FIELD SERVICES

- A. Obtain required permits to perform tests. Perform tests required by regulatory agencies.
- B. Schedule tests with agencies and Architect and Contractor present.
- C. Submit test and approval certificates issued by jurisdictional authorities.

3.6 ADJUSTING

- A. Adjust for smooth movement of car.
- B. Adjust for consistent stopping between landings.

3.7 CLEANING

- A. Remove protective coverings from finished surfaces.
- B. Clean surfaces and components ready for inspection.

3.8 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

- A. :
- B. :

END OF SECTION