



State of Utah

GARY R. HERBERT  
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GREGORY S. BELL  
Lt. Governor

Department of Administrative Services

KIMBERLY K. HOOD  
Executive Director

Division of Facilities Construction and Management

RICH AMON  
Interim Director

## Addendum No. 6

Date: June 14, 2013

To: Contractors

From: Rick James - Project Manager

Reference: George S. Eccles Student Life Center  
University of Utah – Salt Lake City, Utah  
DFCM Project No. 08015750

Subject: **Addendum No. 6**

Pages	Addendum Cover Sheet	1 page
	Revised Project Schedule	1 page
	Interview Schedule	1 page
	<u>Architect's Addendum No. Five</u>	<u>56 pages</u>
	Total	59 pages

**Note:** *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

**6.1 SCHEDULE CHANGES:** See attached Revised Project Schedule. Changes are highlighted.

**6.2 GENERAL ITEMS:**

6.2.1 See attached Interview Schedule.

6.2.2 See attached Architect's Addendum No. Five dated June 14, 2013.



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES  
Division of Facilities Construction and Management

DFCM

**PROJECT SCHEDULE – REVISED  
PER ADDENDUM NO. 6 DATED JUNE 14, 2013**

**PROJECT NAME: GEORGE S. ECCLES STUDENT LIFE CENTER  
UNIVERSITY OF UTAH – SALT LAKE CITY, UTAH**  
**DFCM PROJECT NO: 08015750**

Event	Date	Date	Time	Place
Request for Proposals Available	Friday	April 19, 2013	3:00 PM	DFCM web site *
<b>Mandatory</b> Pre-Proposal Site Meeting	Wednesday	May 1, 2013	10:00 AM	First Floor Auditorium State Office Building 350 North State Street SLC, UT
Last Day to Submit Questions prior to submittal of Statements of Qualifications	Friday	May 3, 2013	4:00 PM	Rick James – DFCM E Mail: rjames@utah.gov
Addendum Deadline	Monday	May 6, 2013	3:00 PM	DFCM web site *
Prime Contractors submit References, Statements of Qualifications, Management Plans (including Schedule), and Termination/Debarment Certifications	Thursday	May 9, 2013	12:00 NOON	DFCM 4110 State Office Bldg 350 North State Street SLC, UT
Short Listing by Selection Committee (Planning on no Interviews) and Announcement	Thursday	May 16, 2013	TBD	TBD
Bid Documents (Specs/Drawings)	Friday	May 17, 2013	12:00 NOON	DFCM web site *
Last Date to Submit Questions for Final Addendum	Monday	June 10, 2013	4:00 PM	Rick James – DFCM E Mail: rjames@utah.gov
<b>Final Addendum Deadline (exception for bid delays)</b>	<b>Monday</b>	<b>June 17, 2013</b>	<b>3:00 PM</b>	<b>DFCM web site *</b>
<b>Prime Contractors Submit Cost Proposals</b>	<b>Thursday</b>	<b>June 20, 2013</b>	<b>2:00 PM</b>	<b>DFCM 4110 State Office Bldg 350 North State Street SLC, UT</b>
<b>Subcontractor List and Cost Reduction Proposals Due</b>	<b>Friday</b>	<b>June 21, 2013</b>	<b>2:00 PM</b>	<b>Email marlaworkman@utah.gov</b>
Interviews	Wednesday	June 26, 2013	TBD	TBD
Announcement	Friday	June 28, 2013	4:00 PM	DFCM web site *

\* DFCM's web site address is <http://dfcm.utah.gov>.

## VALUE-BASED SELECTION INTERVIEW SCHEDULE

University of Utah  
George S. Eccles Student Life Center  
DFCM Project No. 08015750

Wednesday, June 26, 2013

Capitol Hill-350 North State Street  
Senate Office Building-Behive Room  
Salt Lake City, Utah

Firm Name	Interview Time
JACOBSEN	8:30 am to 9:15 am
LAYTON	9:30 am to 10:15 am
BIG-D	10:30 am to 11:15 am
GRAMOLL	12:15 pm to 1:00 pm
OKLAND	1:15 pm to 2:00 pm
Each interview will consist of a 30-minute presentation with a 15-minute Q&A	

Selection Committee:

Mike Perez - University of Utah  
Brent Agnew - MHTN Architects  
Dave McKay - DFCM



## Addendum No. 5

Issued: 06/13/14

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**Addendum No. Five  
for the  
Student Life Center  
Bid Package  
MHTN Project No. 2010562**

All Contractors submitting proposals on the above captioned project shall be governed by the following addendum, changes and explanations to the bidding documents dated May 15, 2013 and shall submit their bids in accordance therewith:

**Changes to the Project Manual:**

**A5.01** Section 015639 – TEMPORARY TREE AND PLANT PROTECTION. This section is reissued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**A5.02** Section 083326 – OVERHEAD COILING GRILLES. This Section is issued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**A5.03** Section 087102 – HARDWARE SCHEDULE. This Section is reissued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**A5.04** Section 104500 – TURNSTILES. This Section is issued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**A5.05** Section 131811 – MULTI-ACTIVITY COURT DASHER BOARD SYSTEM. This Section is issued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**A5.06** Section 321445 – AGGREGATE PATHWAYS. This section is issued as an attachment to this addendum.

1. See attachment (attachment not included in Addendum#4)

**Attachments:**

**Specifications**

1. Section 015639
2. Section 083326
3. Section 087102
4. Section 104500
5. Section 131811
6. Section 321445

**End of Addendum No. 5**

The Project Team Leader has reviewed this document and found it in compliance with internal standards

Angelica M. Pavoni

6/14/2013

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Team Leader

\_\_\_\_\_  
Date

## SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Watering of trees, shrubs, grass
- C. Related Sections:
  - 1. Division 01 Section "Temporary Facilities and Controls" for temporary site fencing.
  - 2. Division 31 Section "Site Clearing" for removing existing trees and shrubs.

#### 1.3 DEFINITIONS

- A. Caliper: Tree-trunk diameters are measured at breast height (termed diameter at breast height or DBH), defined as the diameter of the tree 4-1/2 feet above ground on the uphill side of the tree. If a tree forks below breast height, each trunk is treated as a separate tree. DBH can be measured with a tree caliper, a Biltmore stick, a tree diameter tape, or a flexible measuring tape (e.g., cloth or steel). Tree calipers, Biltmore sticks, and tree-diameter tapes can be purchased through forestry equipment supply companies. The flexible measuring tape can be used to measure tree trunk circumference and circumference divided by 3.14 to determine diameter.
- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, shall be **defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line as a standard unless otherwise indicated** on the Drawings. A radius of 1.0 times the diameter of the drip line is the minimum shown on the tree protection plan.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of the following:

1. Organic Mulch: **1-quart (1-L)** volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
  2. Protection-Zone Fencing: Assembled Samples of **manufacturer's standard size made from full-size components 6'-0"** high
  3. Protection-Zone Signage: Full-size Samples of each size and text, ready for installation.
- C. Tree Construction Access Schedule: Written schedule detailing scope and extent of construction operations around trees to remain that interfere with or are affected by construction. Any work proposed within the drip line of any tree will require adequate root protection which may include mulch or sheets of plywood. All proposed work shall be reviewed and approved by the University Project Manager and University Arborist.
1. Species and size of tree.
  2. Location on site plan. Include unique identifier for each.
  3. Reason for construction operation.
  4. Description of agreed upon scope of work to be performed.
  5. Description of maintenance following construction operations.
- D. Trees, shrubs and grass Water Schedule: All existing landscaping to be protected shall be watered a minimum of (3) three times per week. Appendix 'B' Tree Watering Schedule is to be submitted every week indicating the days that the contractor proposed to water trees. The owner will field verify watering onsite.
- E. Existing Conditions: This contract shall be required to photo document all existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
1. Use sufficiently detailed photographs or videotape. Photograph each tree from a minimum of three points to detail the entire circumference of the tree.
  2. Include plans and notations to tie a specific tree to a specific location.

## 1.5 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at **Project site**
1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
    - a. Construction schedule. Verify availability of materials, personnel, and equipment needed to make progress and avoid delays.
    - b. Enforcing requirements for protection zones.
    - c. Contractor responsibilities.
    - d. University Arborist responsibilities
    - e. Field quality control.
    - f. Tree Watering Schedule
- B. Removal of Existing Trees
1. Review Written permission by the Maintenance Department (through the Architect and University Project Manager) is required prior to the removal of any tree on campus.

## 1.6 PROJECT CONDITIONS

- A. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
  2. Parking vehicles or equipment.
  3. Foot traffic.
  4. Erection of sheds or structures.
  5. Impoundment of water.
  6. Excavation or other digging unless otherwise indicated.
  7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Topsoil: Natural or cultivated top layer of the soil profile or manufactured topsoil; containing organic matter and sand, silt, and clay particles; friable, pervious, sandy loam; reasonably free of subsoil, clay lumps, gravel, and other objects more than **1/2 inch (12.5 mm)** in diameter; and free of weeds, roots, and toxic and other nonsoil materials.
1. Refer to section 032800 for topsoil requirements.
- B. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements.
1. Chain-Link Protection-Zone Fencing: **Galvanized-steel** fencing fabricated from minimum 2-inch (50-mm) opening, 0.148-inch- (3.76-mm-) diameter wire chain-link fabric; with 'T' type fence posts, with tie wires, hog ring ties, and other accessories for a complete fence system.
    - a. Height: **6 feet (1.8 m)**.
- C. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes pre-punched and reinforced; legibly printed with nonfading lettering and as follows:
1. Size and Text: 18" x 24" with Text  

TREE PROTECTION AREA  
DO NOT ENTER

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ZONA DE PROTESCION  
PARA ARBOLES-NO ENTRE
  2. Lettering: **2-inch- (50-mm-)** high minimum, red characters on **white** background.

- D. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, available from Diamond trees red brown tree mulch
  - 1. Type: Composted **Wood and bark chips from Diamond trees or approved equal.**
  - 2. Size Range: **1/2 inch (13 mm) maximum.**
  - 3. Color: Red/Brown
  
- E. Water: **Potable water**

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
  
- B. For the record, prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

#### 3.2 PREPARATION

- A. Locate and clearly identify trees vegetation to remain. Flag with a **1-inch (25-mm) blue-vinyl tape around** each tree trunk at 54 inches (1372 mm) above the ground.
  
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations. Options available are:
  - 1. Mulch areas inside tree driplines where construction operations occur with a minimum of **4-inch (100-mm)** average thickness of organic mulch. Do not place mulch within **12 inches (300 mm)** of tree trunks.
  - 2. A ¾" plywood deck, or a matt of 4"x4" wood beams laid over 4" of wood chip mulch evenly distributed with the tree protection zone..
  - 3. 4" to 6" clean washed gravel laid evenly over a taut, staked geotextile fabric.
  - 4. Commercial logging or road mats assembled over support rails, laid over a 4" to 6" mulch layer.

#### 3.3 TREE- AND PLANT-PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones **before materials or equipment are brought on the site and demolition operations begin** in a manner that will prevent people and or construction operations from easily entering protected area. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections

where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

1. Chain-Link Fencing: Install to comply with ASTM F 567 and with manufacturer's written instructions.
  2. Posts: Drive 'T' posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect. Verify location of main and lateral irrigation lines with the University prior to post installation.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every **50 feet (15 m)** on protection-zone fencing, but no fewer than two signs with each facing a different direction.
- C. Maintain protection zones free of weeds and trash.
- D. Repair or replace trees or vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect, University Project Manager and University Arborist.
- E. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and University and remove when construction operations are complete and equipment has been removed from the site.
1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
  2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

### 3.4 EXCAVATION

- A. General: Excavate at edge of protection zones, inside the drip zone and for trenches indicated within protection zones according to requirements in Division 31 Section "Earth Moving" and as defined by the University Arborist in the Preconstruction Meeting. University Arborist will define acceptable requirements.
- B. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches (75 mm) back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

### 3.5 ROOT PRUNING

- A. All root pruning will be supervised by the University Arborist, no exceptions. Contact the University Project Manager prior to any construction operation within a tree drip zone.
- B. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
  - 1. Cover exposed roots with burlap and water regularly.
  - 2. Backfill as soon as possible according to requirements in Division 31 Section "Earth Moving."
- C. Root Pruning at Edge of Protection Zone: Prune roots **flush with the edge** of the protection zone, by cleanly cutting all roots to the depth of the required excavation.
- D. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems as directed by the University Arborist. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

### 3.6 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is **1 inch (25 mm)** or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

### 3.7 FIELD QUALITY CONTROL

- A. Inspections: The University Project Manager and Arborist shall be contacted on as needed basis and shall approve of plant-protection measures in the vicinity of trees and other vegetation indicated to remain and to prepare inspection reports.
- B. Temporary Watering: All trees to be protected shall be watered by this contract as submitted in the watering schedule (see Appendix A). Contractor shall check each tree and indicate duration of watering. Owner to be onsite to verify.

### 3.8 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees and other vegetation indicated to remain that are damaged by construction operations, in a manner approved by University Project Manager and Architect.

1. Submit details of proposed tree repairs.
2. Contact the University Project manager and arborist immediately if any tree to remain is damaged.
3. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by the University Project Manager and Architect.

B. Soil Aeration: Where directed by the Owner and Architect, aerate surface soil compacted during construction. Aerate **10 feet (3 m)** beyond the drip line and no closer than **48 inches (1200 mm)** to tree trunk. Drill **2-inch- (50-mm-)** diameter holes a minimum of 12 inches (300 mm) deep at **24 inches (600 mm)** o.c. Backfill holes with an equal mix of augured soil and sand.

### 3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 015639



## SECTION 083326 - OVERHEAD COILING GRILLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Open-curtain overhead coiling grilles, manually operated.

- B. Related Sections:

- 1. Division 1 Section "Sustainable Design Requirements" for requirements related to LEED certification.
  - 2. Division 05 Section "Metal Fabrications" for miscellaneous steel supports.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. LEED Submittals:

- 1. Credits MR 4.1 and 4.2: For products having recycled content, manufacturer's documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
    - a. Include statement indicating cost for each product containing steel.
  - 2. Credit MR 5.1 and 5.2: Submit the locations of manufacturing and harvest, extraction or recovery for all products manufactured within 500 miles that also contain raw materials harvested, extracted or recovered within 500 miles. Submit distances in miles, as the crow flies, from the harvest/extraction/recovery site and from the manufacturing site to the Project.
    - a. Submit cut sheet and/or letter from manufacturer verifying locations.
    - b. Include statement indicating cost for each material and the fraction by weight that is considered regional.

- B. Delegated Design: Design overhead coiling grilles, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

- C. Seismic Performance: Overhead coiling grilles shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
2. Seismic Component Importance Factor: 1.0.

D. Operation Cycles: Provide overhead coiling grille components and operators capable of operating for not less than number of cycles indicated for each grille. One operation cycle is complete when a grille is opened from the closed position to the fully open position and returned to the closed position.

#### 1.4 SUBMITTALS

A. Product Data: For each type and size of overhead coiling grille and accessory. Include the following:

1. Construction details, material descriptions, dimensions of individual components, profiles for curtain components, and finishes.
2. Rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

C. Samples for Initial Selection: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Open-Curtain Grille: 18-inch- (457-mm-) square assembly with full-size components consisting of rods, spacers, and links as required to illustrate each assembly.
2. Bottom Bar: 6 inches (150 mm) long.
3. Guides: 6 inches (150 mm) long.
4. Mounting Frame: 6 inches (150 mm) long.
5. Brackets: 6 inches (150 mm) square.
6. Hood: 6 inches (150 mm) square.

E. Delegated-Design Submittal: For overhead coiling grilles indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of seismic restraints.
2. Summary of forces and loads on walls and jambs.

F. Qualification Data: For qualified Installer.

- G. Seismic Qualification Certificates: For overhead coiling grilles, accessories, and components, from manufacturer.
- H. Maintenance Data: For overhead coiling grilles to include in maintenance manuals.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling grilles from single source from single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

## PART 2 - PRODUCTS

### 2.1 GRILLE CURTAIN MATERIALS AND CONSTRUCTION

- A. Open-Curtain Grilles: Fabricate metal grille curtain as an open network of horizontal rods, spaced at regular intervals, that are interconnected with vertical links, which are formed and spaced as indicated and are free to rotate on the rods.
  - 1. Aluminum Grille Curtain: ASTM B 221 (ASTM B 221M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- B. Endlocks: Continuous end links, chains, or other devices at ends of rods; locking and retaining grille curtain in guides against excessive pressures, maintaining grille curtain alignment, and preventing lateral movement.
- C. Bottom Bar: Manufacturer's standard continuous channel or tubular shape, finished to match grille.
  - 1. Astragal: Equip each grille bottom bar with a replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene as a cushion bumper.
- D. Grille Curtain Jamb Guides: Manufacturer's standard shape having curtain groove with return lips or bars to retain curtain. Provide continuous integral wear strips to prevent metal-to-metal contact and to minimize operational noise; with removable stops on guides to prevent overtravel of curtain.

## 2.2 HOODS AND ACCESSORIES

- A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.
1. Aluminum: 0.040-inch- (1.02-mm-) thick aluminum sheet complying with ASTM B 209 (ASTM B 209M), of alloy and temper recommended by manufacturer and finisher for type of use and finish indicated.
- B. Mounting Frame: Manufacturer's standard mounting frame designed to support grille; factory fabricated from ASTM A 36/A 36M structural-steel [tubes] [or] [shapes], hot-dip galvanized per ASTM A 123/A 123M; fastened to floor and structure above grille; to be built into wall construction; and complete with anchors, connections, and fasteners.
- C. Push/Pull Handles: Equip each push-up-operated or emergency-operated grille with lifting handles on each side of grille, finished to match grille.

## 2.3 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
1. Lock Cylinders: Provide cylinders standard with manufacturer and keyed to building keying system.
  2. Keys: Three for each cylinder.

## 2.4 COUNTERBALANCING MECHANISM

- A. General: Counterbalance grilles by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, welded or seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of parts and to limit barrel deflection to not more than 0.03 in./ft. (2.5 mm/m) of span under full load.
- C. Spring Balance: One or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Secure ends of springs to barrel and shaft with cast-steel barrel plugs.
- D. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

## 2.5 MANUAL GRILLE OPERATORS

- A. Equip grille with manufacturer's recommended manual grille operator unless another type of grille operator is indicated.
- B. Crank Operator: Consisting of crank and crank gearbox, steel crank drive shaft, and gear-reduction unit, of type indicated. Size gears to require not more than 25 lbf (111 N) force to turn crank. Fabricate gearbox to be oil tight and to completely enclose operating mechanism. Provide manufacturer's standard crank-locking device.

## 2.6 OPEN-CURTAIN GRILLE ASSEMBLY

- A. Open-Curtain Grille: Overhead coiling grille with a curtain having a network of horizontal rods that interconnect with vertical links.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. ACME Rolling Doors.
    - b. Alpine Overhead Doors, Inc.
    - c. AlumaTek, Inc.
    - d. City-Gates.
    - e. Cookson Company.
    - f. Cornell Iron Works, Inc.
    - g. Dynaflair Corporation.
    - h. Dynamic Closures Corp.
    - i. Lawrence Roll-Up Doors, Inc.
    - j. Mahon Door Corporation.
    - k. McKeon Rolling Steel Door Company, Inc.
    - l. Metro Door.
    - m. Overhead Door Corporation.
    - n. Raynor.
    - o. Windsor Door.
- B. Operation Cycles: Not less than 20,000.
- C. Grille Curtain Material: Aluminum.
  - 1. Space rods at approximately 2 inches (51 mm) o.c.
  - 2. Space links approximately 6 inches (152 mm) apart in a straight in-line pattern.
  - 3. Spacers: Metal tubes matching curtain material.
- D. Curtain Jamb Guides: Aluminum with exposed finish matching curtain slats. Provide continuous integral wear strips to prevent metal-to-metal contact and to minimize operational noise.
- E. Hood: Aluminum.
  - 1. Shape: Round.
  - 2. Mounting: Face of wall.

- F. Locking Devices: Equip grille with locking device assembly.
  - 1. Locking Device Assembly: Cremona type, both jamb sides locking bars, operable from inside and outside with cylinders.
- G. Manual Grille Operator: Manufacturer's standard crank operator.
  - 1. Provide operator with manufacturer's standard removable operating arm.
- H. Grille Finish:
  - 1. Aluminum Finish: Clear anodized.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.8 ALUMINUM FINISHES

- A. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.010 mm or thicker) complying with AAMA 607.1

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install overhead coiling grilles and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

- B. Install overhead coiling grilles, hoods, and operators at the mounting locations indicated for each grille.
- C. Accessibility: Install overhead coiling grilles, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility.

### 3.3 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
  - 1. Perform installation and startup checks according to manufacturer's written instructions.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.4 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that grilles operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.

### 3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling grilles.

END OF SECTION 083326

**HW SET NO: 01**

DOOR NUMBER: (Includes but is not limited to the following doors)

100D-2	111	114	1160	1161A	1161B
1161C	117	150-2	155-1	205-2	220-2

1	EA	CYLINDER AS REQ'D	BY OWNER	626	B/O
1	EA	DOOR POSITION SWITCH	BY DOOR MFG IF REQ'D		B/O
1	EA	REMAINING HARDWARE	DOOR MFG STD		B/O
		REF DIV 06800	FOR DOORS 111 & 114		B/O

**HW SET NO: 02**

DOOR NUMBER: (Includes but is not limited to the following doors)

199D-1

1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-98-L-F-996-06	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	700SA	CL	NGP
1	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 03**

DOOR NUMBER: (Includes but is not limited to the following doors)

199F

1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-98-L-996-06	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	700SA	CL	NGP
1	EA	DOOR SWEEP	C627A	CL	NGP

1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 04**

DOOR NUMBER: (Includes but is not limited to the following doors)

198                      400

4	EA	HW HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	REQUEST TO EXIT	BY DIV 28		B/O
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	SET	SEALS	700SA	CL	NGP
1	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM.

**HW SET NO: 05**

DOOR NUMBER: (Includes but is not limited to the following doors)

499D

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	REQUEST TO EXIT	BY DIV 28		B/O
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP RW/PA TBWMS	689	LCN
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	700SA	CL	NGP
1	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM.

**HW SET NO: 06**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100G

1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-98-L-NL-F-996-06	626	VON
1	EA	REQUEST TO EXIT	BY DIV 28		B/O
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	700SA	CL	NGP
1	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 07**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 40S

2	EA	CONT. HINGE	224HD	628	IVE
2	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
2	EA	REQUEST TO EXIT	BY DIV 28		B/O
2	EA	OH STOP	90S	630	GLY
1	SET	SEALS	700SA	CL	NGP
1	EA	ASTRAGAL	139A	600	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

**HW SET NO: 08**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 45B-1

8	EA	HW HINGE	5BB1HW 4.5 X 4.5	630	IVE
2	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	REQUEST TO EXIT	BY DIV 28		B/O

2	EA	OH STOP	90S J	630	GLY
1	SET	SEALS	700SA	CL	NGP
1	EA	ASTRAGAL	139A	600	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

**HW SET NO: 09**

DOOR NUMBER: (Includes but is not limited to the following doors)

04 120

2	EA	CONT. HINGE	224HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	KEYED REMOVABLE MULLION	KR4954	689	VON
1	EA	ELEC PANIC HARDWARE	RX-98-EO	626	VON
1	EA	ELEC PANIC HARDWARE	RX-98-L-996-06	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	SET	SEALS	700SA	CL	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 10**

DOOR NUMBER: (Includes but is not limited to the following doors)

10M

2	EA	CONT. HINGE	224HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	KEYED FIRE RATED REMOVABLE MULLION	KR9954	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-98-EO-F	626	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-98-L-F-996-06	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP CUSH TBWMS	689	LCN

1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	SET	SEALS	700SA	CL	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.  
 DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 11**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 199B                      199C

2	EA	CONT. HINGE	224HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-9849-EO-F	626	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-9849-L-F-996-06	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	SET	SEALS	700SA	CL	NGP
1	SET	ASTRAGAL	9605A	CL	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.  
 INSTALL WEATHERSTRIP BEFORE CLOSER. DO NOT NOTCH WEATHERSTRIP AROUND CLOSER BRACKET.

**HW SET NO: 12**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 5

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	FIRE EXIT HARDWARE	98-L-F-996-06	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	160S	AL	NGP
1	EA	DOOR SWEEP	200NA	CL	NGP

**HW SET NO: 13**

DOOR NUMBER: (Includes but is not limited to the following doors)

155B	155C	155H	240A	240B	240C
341	343	345	347	349	351
355	40A-1	6			

4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE/ENTRY LOCK	L9050L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 14**

DOOR NUMBER: (Includes but is not limited to the following doors)

100E	201E	25	301D	7
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4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	EU STOREROOM LOCK	RX-L9080LEU 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

CARD IN. USER PRESENTS CREDENTIAL, ELECTRIC LOCKSET LEVER RELEASES, USER OPENS DOOR TO ENTER. DOOR POSITION IS MONITORED BY SECURITY SYSTEM, REX IS IN THE LOCKSET LEVER.

EACH EU LOCK SHOULD HAVE IT'S OWN 24-VOLT TRANSFORMER. 2 OR MORE LOCKS MAY BE OPERATED IN PARALLEL FROM A SINGLE TRANSFORMER PROVIDED IT HAS THE NECESSARY CURRENT RATING.

VOLTAGE 24V AC OR DC (MAXIMUM 29V, MINIMUM 20V) PEAK CURRENT: 1.3 AMPS AT 5 TO 10 SECOND INTERVALS. HOLDING CURRENT: .135 AMPS BETWEEN PEAK CURRENT INTERVALS. RX 1.0 AMPS. PEAK LOAD 5 AMPS, 250 AC OR DC VOLTS.

**HW SET NO: 15**

DOOR NUMBER: (Includes but is not limited to the following doors)

10F-1

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	FIRE EXIT HARDWARE	98-L-F-996-06	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP

**HW SET NO: 16**

DOOR NUMBER: (Includes but is not limited to the following doors)  
10F-2

2	EA	CONT. HINGE	224HD	628	IVE
1	EA	FIRE EXIT HARDWARE	9849-EO-F-996-LBL	626	VON
1	EA	FIRE EXIT HARDWARE	9875-L-F-996-06	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
2	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	SET	ASTRAGAL	9605A	CL	NGP

**HW SET NO: 16.1**

DOOR NUMBER: (Includes but is not limited to the following doors)  
10M-B

8	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	SET	AUTO FLUSH BOLT	FB32	630	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
2	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	SET	ASTRAGAL	9605A	CL	NGP

**HW SET NO: 16.2**

DOOR NUMBER: (Includes but is not limited to the following doors)  
10N

8	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	SET	AUTO FLUSH BOLT	FB42	630	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB	689	IVE
2	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
2	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	SET	ASTRAGAL	9605A	CL	NGP

**HW SET NO: 17**

DOOR NUMBER: (Includes but is not limited to the following doors)  
75-1

2	EA	CONT. HINGE	224HD	628	IVE
2	EA	FIRE EXIT HARDWARE	9849-L-F-996-06-LBL	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE

2	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	SET	ASTRAGAL	9605A	CL	NGP

**HW SET NO: 18**

DOOR NUMBER: (Includes but is not limited to the following doors)

199E-A	199E-B	299B	299C	299F	399B
399C	399F	99B	99C	99F	
1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-ALK-98-L-F-E996-06-FS-AR3-SNB	626	VON
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O

FAIL SAFE ALARMED EXIT. IN THE EVENT OF A FIRE EVENT, EXIT DEVICE TRIM TO FAIL SAFE (LATCHED BUT NOT LOCKED).

**HW SET NO: 19**

DOOR NUMBER: (Includes but is not limited to the following doors)

199D	299D	399D	99D		
1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-ALK-98-L-F-E996-06-FS-AR3-SNB	626	VON
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
2	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

CARD IN / CARD OUT. USER PRESENTS CREDENTIAL, EXIT DEVICE LEVER RELEASES, EXTERNAL INHIBIT SWITCH WILL SHUNT THE ALARM AND USER OPENS DOOR TO ENTER. UNAUTHORIZED EXIT FROM CORRIDOR, USER PUSHES EXIT DEVICE BAR, ALARM SOUNDS FOR 3 MINUTES THEN AUTOMATICALLY RESETS. ALARM MAY BE RESET FROM REMOTE LOCATION TBD, OR AT EXIT DEVICE.

IN THE EVENT OF A FIRE EVENT, EXIT DEVICE TRIM TO FAIL SAFE (LATCHED BUT NOT LOCKED).

**HW SET NO: 20**

DOOR NUMBER: (Includes but is not limited to the following doors)

197					
2	EA	CONT. HINGE	700	630	IVE

2	EA	MANUAL FLUSH BOLT	FB458	626	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	L9080L 06A	630	SCH
2	EA	REQUEST TO EXIT	BY DIV 28		B/O
2	EA	OH STOP	90S	630	GLY
1	SET	SEALS	700SA	CL	NGP
1	EA	ASTRAGAL	139SS 84"	630	NGP
2	EA	DOOR SWEEP	C627A	CL	NGP
1	EA	THRESHOLD	425HD	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

**HW SET NO: 21**

DOOR NUMBER: (Includes but is not limited to the following doors)

100G-1                      45

2	EA	CONT. HINGE	224HD	628	IVE
1	EA	PANIC HARDWARE	9827-EO-LBR-ER12	626	VON
1	EA	PANIC HARDWARE	9875-L-996-06-576A	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA	WALL STOP	WS407CCV	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 22**

DOOR NUMBER: (Includes but is not limited to the following doors)

299E                              399E

1	EA	CONT. HINGE	224HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-ALK-98-L-F-E996-06-FS-SNB	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN

CARD IN FROM STAIR. USER PRESENTS CREDENTIAL, EXIT DEVICE LEVER RELEASES, USER OPENS DOOR.

CARD OUT. USER PRESENTS CREDENTIAL, EXIT DEVICE ALARM IS SHUNTED AND USER DEPRESSES EXIT DEVICE BAR TO RETRACT LATCH TO ENTER STAIR.

INTERFACE REQUIRED WITH FIRE-LIFE SAFETY SYSTEM. EXIT DEVICE TO FAIL SAFE IN THE EVENT OF A FIRE. UNAUTHORIZED EXIT, LOCAL ALARM WILL SOUND.

**HW SET NO: 23**

DOOR NUMBER: (Includes but is not limited to the following doors)

99E-1                      99E-2

4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	EL STOREROOM LOCK	L9080LEL 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP
1	EA	POWER SUPPLY	BY DIV 28		B/O

INTERFACE REQUIRED WITH FIRE-LIFE SAFETY SYSTEM TO UNLOCK LEVER IN THE EVENT OF A FIRE.

EACH EU LOCK SHOULD HAVE IT'S OWN 24-VOLT TRANSFORMER. 2 OR MORE LOCKS MAY BE OPERATED IN PARALLEL FROM A SINGLE TRANSFORMER PROVIDED IT HAS THE NECESSARY CURRENT RATING.

VOLTAGE 24V AC OR DC (MAXIMUM 29V, MINIMUM 20V) PEAK CURRENT: 1.3 AMPS AT 5 TO 10 SECOND INTERVALS. HOLDING CURRENT: .135 AMPS BETWEEN PEAK CURRENT INTERVALS. RX 1.0 AMPS. PEAK LOAD 5 AMPS, 250 AC OR DC VOLTS.

**HW SET NO: 24**

DOOR NUMBER: (Includes but is not limited to the following doors)

104                      10M-A                      301G

4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP RW/PA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	SEALS	160S	AL	NGP

**HW SET NO: 25**

DOOR NUMBER: (Includes but is not limited to the following doors)

215-1                      215-2                      215-3

2	EA	CONT. HINGE	112HD	628	IVE
1	EA	KEYED REMOVABLE	KR4954	689	VON
		MULLION	(DR 215-1 ONLY)		
2	EA	PANIC HARDWARE	CD-98-L-996-06	626	VON
3	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	PERIMETER SEALS	FRAME MFG STD	AL	B/O

DOORS 215-2 AND 215-3 TO HAVE FIXED MULLIONS BY FRAME MANUFACTURER.

**HW SET NO: 26**

DOOR NUMBER: (Includes but is not limited to the following doors)

119                      126                      41                      47

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	PANIC HARDWARE	CD-98-L-996-06	626	VON
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

ROUGH IN FOR FUTURE ADA OPERATOR AND ACTUATORS.

**HW SET NO: 27**

DOOR NUMBER: (Includes but is not limited to the following doors)

265-1                      265-2

1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-98-L-E996-06-FSE-1439	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	PERIMETER SEALS	FRAME MFG STD	AL	B/O

EXIT DEVICE MAY BE UNLOCKED/LOCKED THROUGH ACCESS CONTROL SYSTEM.  
 CARD IN. USER PRESENTS CREDENTIAL, EXIT DEVICE LEVER RELEASES, USER OPENS DOOR TO ENTER  
 DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: 28**

DOOR NUMBER: (Includes but is not limited to the following doors)

235A

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	PERIMETER SEALS	FRAME MFG STD	AL	B/O

**HW SET NO: 29**

DOOR NUMBER: (Includes but is not limited to the following doors)

215A                      235B                      235D

8	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
			(TOP)		
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	OH STOP	90S J	630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	ASTRAGAL	139A	600	NGP
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 30**

DOOR NUMBER: (Includes but is not limited to the following doors)

240F

4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	L9070L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	OH STOP	90S J	630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 31**

DOOR NUMBER: (Includes but is not limited to the following doors)

255                      275                      285

1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	EU STOREROOM LOCK	RX-L9080LEU 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	POWER SUPPLY	BY DIV 28		B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	PERIMETER SEALS	FRAME MFG STD	AL	B/O

CARD IN. USER PRESENTS CREDENTIAL, ELECTRIC LOCKSET LEVER RELEASES, USER OPENS DOOR TO ENTER. DOOR POSITION IS MONITORED BY SECURITY SYSTEM, REX IS IN THE LOCKSET LEVER. LOCKSET MAY BE UNLOCKED/LOCKED THROUGH ACCESS CONTROL SYSTEM.

EACH EU LOCK SHOULD HAVE IT'S OWN 24-VOLT TRANSFORMER. 2 OR MORE LOCKS MAY BE OPERATED IN PARALLEL FROM A SINGLE TRANSFORMER PROVIDED IT HAS THE NECESSARY CURRENT RATING.

VOLTAGE 24V AC OR DC (MAXIMUM 29V, MINIMUM 20V) PEAK CURRENT: 1.3 AMPS AT 5 TO 10 SECOND INTERVALS. HOLDING CURRENT: .135 AMPS BETWEEN PEAK CURRENT INTERVALS. RX 1.0 AMPS. PEAK LOAD 5 AMPS, 250 AC OR DC VOLTS.

**HW SET NO: 32**

DOOR NUMBER: (Includes but is not limited to the following doors)

22

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	AUTO FLUSH BOLT	FB41T	630	IVE
1	EA	EU STOREROOM LOCK	RX-L9080LEU 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA	WALL STOP	WS407CCV	630	IVE
1	EA	ASTRAGAL	139A	600	NGP
2	EA	SILENCER	SR64	GRY	IVE
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN

CARD IN. USER PRESENTS CREDENTIAL, ELECTRIC LOCKSET LEVER RELEASES, USER OPENS DOOR TO ENTER. DOOR POSITION IS MONITORED BY SECURITY SYSTEM, REX IS IN THE LOCKSET LEVER.

EACH EU LOCK SHOULD HAVE IT'S OWN 24-VOLT TRANSFORMER. 2 OR MORE LOCKS MAY BE OPERATED IN PARALLEL FROM A SINGLE TRANSFORMER PROVIDED IT HAS THE NECESSARY CURRENT RATING.

VOLTAGE 24V AC OR DC (MAXIMUM 29V, MINIMUM 20V) PEAK CURRENT: 1.3 AMPS AT 5 TO 10 SECOND INTERVALS. HOLDING CURRENT: .135 AMPS BETWEEN PEAK CURRENT INTERVALS. RX 1.0 AMPS. PEAK LOAD 5 AMPS, 250 AC OR DC VOLTS.

**HW SET NO: 33**

DOOR NUMBER: (Includes but is not limited to the following doors)

100R                      145A                      85B

4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP EDA TBWMS	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 34**

DOOR NUMBER: (Includes but is not limited to the following doors)

47S-2

4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 35**

DOOR NUMBER: (Includes but is not limited to the following doors)

116	155	201F	301F	45B		
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE	
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH	
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O	
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN	
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE	
1	EA	WALL STOP	WS407CCV	630	IVE	
3	EA	SILENCER	SR64	GRY	IVE	

**HW SET NO: 36**

DOOR NUMBER: (Includes but is not limited to the following doors)

360A						
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE	
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH	
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O	
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE	
1	EA	WALL STOP	WS407CCV	630	IVE	
3	EA	SILENCER	SR64	GRY	IVE	

**HW SET NO: 37**

DOOR NUMBER: (Includes but is not limited to the following doors)

10J	200P	300K-1				
4	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE	
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH	
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O	
1	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN	
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN	
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE	
3	EA	SILENCER	SR64	GRY	IVE	

**HW SET NO: 38**

DOOR NUMBER: (Includes but is not limited to the following doors)

45A						
8	EA	HINGE	5BB1 4.5 X 4.5	652	IVE	
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE	
			(TOP)			
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH	
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O	
2	EA	OH STOP	90S	630	GLY	
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN	
			(ACTIVE LEAF ONLY)			
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE	
1	EA	ASTRAGAL	139A	600	NGP	
2	EA	SILENCER	SR64	GRY	IVE	

**HW SET NO: 39**

DOOR NUMBER: (Includes but is not limited to the following doors)

10K 130

8	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	AUTO FLUSH BOLT	FB41T	630	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB	689	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	ASTRAGAL	139A	600	NGP
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 40**

DOOR NUMBER: (Includes but is not limited to the following doors)

120-1 85

8	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
			(TOP)		
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
			(ACTIVE LEAF ONLY)		
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA	WALL STOP	WS407CCV	630	IVE
1	EA	ASTRAGAL	139A	600	NGP
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 41**

DOOR NUMBER: (Includes but is not limited to the following doors)

222 65

8	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
			(TOP)		
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	OH STOP & HOLDER	90H J	630	GLY
1	EA	ASTRAGAL	139A	600	NGP
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 42**

DOOR NUMBER: (Includes but is not limited to the following doors)

100P 100Q 129 235C 307

1	EA	CONT. HINGE	224HD	628	IVE
1	EA	STOREROOM LOCK	L9080L 06A	626	SCH

1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	WALL STOP	WS407CCV	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 43**

DOOR NUMBER: (Includes but is not limited to the following doors)

240D	25C	340C	60B		
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	L9010 06A	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 44**

DOOR NUMBER: (Includes but is not limited to the following doors)

240E	25E				
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK	L9040 06A	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	COAT AND HAT HOOK	582	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 45**

DOOR NUMBER: (Includes but is not limited to the following doors)

155K	200M	300H	300N	315A	40C
40D					
4	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY W/DB & IND	L9496L OCCUPIED/VACANT 06A L583-363	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	COAT AND HAT HOOK	582	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: 46**

DOOR NUMBER: (Includes but is not limited to the following doors)

100D-1	150-1	205-1	220-1		
2	EA	REVERSE SPRING	1257 4.5 X 4.5	26D	HAG
		HINGE			
2	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA	MAGNETIC CATCH	327	673	IVE

**HW SET NO: 47**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 198B

8	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	MANUAL FLUSH BOLT	FB458	626	IVE
			(TOP)		
1	EA	STOREROOM LOCK	L9080L 06A	630	SCH
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	OH STOP & HOLDER	90H J	630	GLY
1	EA	ASTRAGAL	139SS 84"	630	NGP
2	EA	SILENCER	SR64	GRY	IVE

**HW SET NO: A**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100A-1

1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC	LX-RX-QEL+-98-NL-OP-LESS TRIM-1439	626	VON
		HARDWARE			
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURF. AUTO OPERATOR	9542 HL/D MS	ANCLR	LCN
1	EA	ACTUATOR, WALL	8310-853	630	LCN
		MOUNT			
1	EA	ACTUATOR, WALL	8310-855	630	LCN
		MOUNT			
1	EA	BOLLARD POST	8310-866	AL	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	POWER SUPPLY	PS902 900-2RS	LGR	VON

AUTO LOCK/UNLOCK THROUGH ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION DURING NORMAL BUSINESS HOURS.

CARD ENTRANCE AFTER HOURS. USER PRESENTS CREDENTIAL, EXIT DEVICE LATCH RETRACTS, EXTERIOR ACTUATOR TURNS ON AND USER EITHER OPENS DOOR TO ENTER OR PUSHES ACTUATOR TO ENABLE AUTO OPERATOR. INTERIOR OPERATOR FUNCTIONS INDEPENDENT OF EXTERIOR OPERATOR.

EXTERIOR ACTUATOR TURNED OFF/ON THROUGH ACCESS CONTROL SYSTEM.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

CARD READER AND ACTUATOR TO BE LOCATED IN BOLLARD POST.

**HW SET NO: B**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100A-2                      100A-3                      100N-2                      100N-3

1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL+-98-EO-1439	626	VON
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	POWER SUPPLY	PS902 900-2RS	LGR	VON

AUTO LOCK/UNLOCK THROUGH ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION DURING NORMAL BUSINESS HOURS.

DOOR POSITION IS MONITORED BY ACCESS CONTROL SYSTEM. REQUEST TO EXIT IS IN EXIT DEVICE.

**HW SET NO: C**

DOOR NUMBER: (Includes but is not limited to the following doors)

100N-1	40E-1	40E-1.1	40E-4	40E-4.1	40E-5
1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-98-NL-OP-LESS TRIM-1439	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	DR POSITION SWITCH	1076D		SEN

DOOR POSITION IS MONITORED BY ACCESS CONTROL SYSTEM. REQUEST TO EXIT IS IN EXIT DEVICE.

**HW SET NO: C1**

DOOR NUMBER: (Includes but is not limited to the following doors)

155-2					
1	EA	CONT. HINGE	112HD EPT	628	IVE
1	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL+-98-NL-OP-110-1439	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN

1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	POWER SUPPLY	PS902 900-2RS	LGR	VON

DOOR POSITION IS MONITORED BY ACCESS CONTROL SYSTEM. REQUEST TO EXIT IS IN EXIT DEVICE.

**HW SET NO: D**

DOOR NUMBER: (Includes but is not limited to the following doors)

100A-6

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	PUSH BAR	350	628	VON
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURF. AUTO OPERATOR	9542 HL/D MS	ANCLR	LCN
1	EA	ACTUATOR, JAMB MOUNT	8310-818	630	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O

INTERIOR OPERATOR FUNCTIONS INDEPENDENT OF EXTERIOR OPERATOR.

**HW SET NO: E**

DOOR NUMBER: (Includes but is not limited to the following doors)

100A-4                      100A-5                      100N-4                      100N-5                      100N-6

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	PUSH BAR	350	628	VON
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O

**HW SET NO: F**

DOOR NUMBER: (Includes but is not limited to the following doors)

100J-1

2	EA	CONT. HINGE	112HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	LX-RX-QEL+-9849-EO-SNB	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL+-9849-EO	626	VON

1	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	OFFSET POST PULL	164F-36"	630	IVE
2	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	SURF. AUTO OPERATOR	9542 HL/D MS	ANCLR	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	ACTUATOR, WALL MOUNT	8310-853	630	LCN
1	EA	ACTUATOR, WALL MOUNT	8310-855	630	LCN
1	EA	CREDENTIAL READER	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN
1	EA	POWER SUPPLY	PS902 900-2RS	LGR	VON
1	EA	THRESHOLD	DOOR MFG STD	AL	B/O
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

AUTO LOCK/UNLOCK THROUGH ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION DURING NORMAL BUSINESS HOURS.  
 CARD ENTRANCE AFTER HOURS. USER PRESENTS CREDENTIAL, EXIT DEVICE LATCH RETRACTS, EXTERIOR ACTUATOR TURNS ON AND USER EITHER OPENS DOOR TO ENTER OR PUSHES ACTUATOR TO ENABLE AUTO OPERATOR.  
 EXTERIOR ACTUATOR TURNED OFF/ON THROUGH ACCESS CONTROL SYSTEM.  
 DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: F1**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100H-1

2	EA	CONT. HINGE	112HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	ELEC PANIC HARDWARE	LX-RX-QEL+-9849-EO-SNB	626	VON
1	EA	ELEC PANIC HARDWARE	RX-QEL+-9849-EO	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
2	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	HIGH SPEED AUTO OPERATOR (BOTH DOOR LEAFS)			B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN
1	EA	POWER SUPPLY	PS902 900-2RS	LGR	VON
1	EA	THRESHOLD	DOOR MFG STD	AL	B/O
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

AUTO LOCK/UNLOCK THROUGH ACCESS CONTROL SYSTEM FOR PUSH/PULL OPERATION DURING NORMAL BUSINESS HOURS.  
 CARD ENTRANCE AFTER HOURS. USER PRESENTS CREDENTIAL, EXIT DEVICE LATCH RETRACTS, EXTERIOR ACTUATOR TURNS ON AND USER EITHER OPENS DOOR TO ENTER OR PUSHES ACTUATOR TO ENABLE AUTO OPERATOR.  
 EXTERIOR ACTUATOR TURNED OFF/ON THROUGH ACCESS CONTROL SYSTEM.

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

**HW SET NO: G**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100J-2

2	EA	CONT. HINGE	112HD	628	IVE
2	EA	OFFSET POST PULL	164F-36"	630	IVE
2	EA	PUSH BAR	350	628	VON
2	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	SURF. AUTO OPERATOR	9542 HL/D MS	ANCLR	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	ACTUATOR, JAMB MOUNT	8310-818	630	LCN
1	EA	PERIMETER SEALS	DOOR MFG STD		
1	EA	THRESHOLD	DOOR MFG STD		

**HW SET NO: G1**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 100H-2

2	EA	CONT. HINGE	112HD	628	IVE
2	EA	OFFSET POST PULL	164F-36"	630	IVE
2	EA	PUSH BAR	350	628	VON
2	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	HIGH SPEED AUTO OPERATOR (BOTH DOOR LEAFS)			B/O
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	DOOR MFG STD		
1	EA	THRESHOLD	DOOR MFG STD		

**HW SET NO: H**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 11

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	DEADBOLT	MS1851	626	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	INDICATOR	4089	628	ADA
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	PUSH BAR	350	628	VON
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	THRESHOLD	MFG STD	AL	B/O

1	EA	DR POSITION SWITCH	1076D		SEN
1	EA	SIGN	"THIS DOOR TO REMAIN UNLOCKED..."		ADA
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM.

**HW SET NO: I**

DOOR NUMBER: (Includes but is not limited to the following doors)

10

2	EA	CONT. HINGE	112HD EPT	628	IVE
2	EA	POWER TRANSFER	EPT10	689	VON
1	EA	REMOVABLE MULLION	5754	628	VON
2	EA	ELEC PANIC HARDWARE	RX-98-L-E996-06-FSE	626	VON
2	EA	OH STOP	100S ADJ	630	GLY
2	EA	SURFACE CLOSER	4040XP EDA SRI	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	POWER SUPPLY	BY DIV 28		B/O
2	EA	DR POSITION SWITCH	1076D		SEN
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

CARD IN. USER PRESENTS CREDENTIAL, EXIT DEVICE LEVER RELEASES, USER OPENS DOOR TO ENTER

DOOR POSITION IS MONITORED THROUGH ACCESS CONTROL SYSTEM. REX IS IN EXIT DEVICE PUSH BAR.

EXIT DEVICE MAY BE UNLOCKED/LOCKED THROUGH ACCESS CONTROL SYSTEM.

**HW SET NO: J**

DOOR NUMBER: (Includes but is not limited to the following doors)

106

108

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	DEADBOLT LEVER	4550	626	ADA
1	EA	DEADBOLT	MS1851	626	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	OFFSET PULL	RM2240 11"	630	ROC
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

**HW SET NO: K**

DOOR NUMBER: (Includes but is not limited to the following doors)

40A-2

40B

40J

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	DEADBOLT LEVER	4550	626	ADA
1	EA	DEADBOLT	MS1851	626	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O

1	EA	OFFSET PULL	RM2240 11"	630	ROC
1	EA	PUSH BAR	350	628	VON
1	EA	SURFACE CLOSER	4040XP EDA SRI	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

**HW SET NO: L**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 340

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	DEADBOLT LEVER	4550	626	ADA
1	EA	DEADBOLT	MS1851	626	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	INDICATOR	4089	628	ADA
1	EA	OFFSET POST PULL	164F-36"	630	IVE
1	EA	PUSH BAR	350	628	VON
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	SIGN	"THIS DOOR TO REMAIN UNLOCKED..."		ADA
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

**HW SET NO: M**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 128                      40F

2	EA	CONT. HINGE	112HD	628	IVE
1	EA	HEADER BOLT	4015	628	ADA
1	EA	THRESHOLD BOLT	4085	628	ADA
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	DEADBOLT LEVER	4550	626	ADA
1	EA	DEADBOLT	MS1851	626	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	EA	OFFSET POST PULL	164F-36"	630	IVE
2	EA	PUSH BAR	350	628	VON
2	EA	OH STOP	100S ADJ	630	GLY
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

**HW SET NO: N**

DOOR NUMBER: (Includes but is not limited to the following doors)  
 118                      121                      41S                      47S-1

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	DEADBOLT	MS1851	626	ADA
2	EA	MORTISE CYLINDER	BY OWNER	626	B/O
1	EA	INDICATOR	4089	628	ADA
1	EA	OFFSET POST PULL	164F-36"	630	IVE

1	EA	PUSH BAR	350	628	VON
1	EA	SURFACE CLOSER	4040XP EDA SRI	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	WALL STOP	WS407CCV	630	IVE
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	SIGN	"THIS DOOR TO REMAIN UNLOCKED..."		ADA
1	EA	PERIMETER SEALS	DOOR MFG STD	AL	B/O

**HW SET NO: P**

DOOR NUMBER: (Includes but is not limited to the following doors)

100J-1A            100J-2A            145                    235-1                    240                    75

1	EA	CYLINDER AS REQ'D	BY OWNER	626	B/O
1	EA	CREDENTIAL READER	BY DIV 28 (DOOR 240 ONLY)		B/O
1	EA	POWER SUPPLY	BY DIV 28 (DOOR 240 ONLY)		B/O
1	EA	HARDWARE BY	RATED DOOR & FRAME SYSTEM		B/O

**HW SET NO: R**

DOOR NUMBER: (Includes but is not limited to the following doors)

150                    60

2	SET	PIVOT	DOOR MFG STD	626	CRL
1	EA	T-TURN CYL	4066	626	ADA
1	EA	DEADLOCK	MS1861S-1	628	ADA
1	EA	MORTISE CYLINDER	BY OWNER	626	B/O
2	SET	PULL	166-F 36" BTB	630	IVE
2	EA	CLOSER	DOOR MFG STD	689	CRL
2	EA	FLOOR STOP	439	626	IVE
1	EA	SIGN	"THIS DOOR TO REMAIN.."		ADA
1	EA	REMAINING HARDWARE	BY DOOR MFG		B/O

**HW SET NO: S**

DOOR NUMBER: (Includes but is not limited to the following doors)

300                    300J-1A                    320

1	EA	CONT. HINGE	112HD	628	IVE
1	EA	PANIC HARDWARE	98-L-996-06-1439-WH PBAR	626	VON
1	EA	RIM CYLINDER	BY OWNER		B/O
1	EA	OH STOP	100S ADJ	630	GLY
1	EA	SURFACE CLOSER	4040XP TBWMS	689	LCN
1	EA	PA MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN
1	EA	PERIMETER SEALS	MFG STD	AL	B/O
1	EA	THRESHOLD	MFG STD	AL	B/O
1	EA	DR POSITION SWITCH	1076D		SEN

**HW SET NO: T**

DOOR NUMBER: (Includes but is not limited to the following doors)

40E-2                      40E-2.1                      40E-3                      40E-3.1

1	EA	CYLINDER AS REQ'D	BY OWNER	626	B/O
1	EA	REMAINING HARDWARE	BY DOOR MFG		B/O

## SECTION 104500 - TURNSTILES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Pedestrian control entry gates.
- B. Related Sections:
  - 1. Divisions 26 and 27 Sections for electrical service and connections for controls and switches.

#### 1.3 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Indicate operating clearances. Indicate location and installation requirements for hardware, blocking, and direction of travel.
  - 2. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of exposed material, finish, covering, or facing indicated.
  - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification: For each type of exposed material, finish, covering, or facing indicated.
- E. Operation and Maintenance Data: For turnstiles to include in maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
  - 1. Finishes for exposed surfaces and accessories. Include precautions for cleaning materials and methods that could be detrimental to finishes and performance.

2. Electric operator.

F. Warranty: Sample of special warranty.

#### 1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Preinstallation Conference: Conduct conference at Project site.

#### 1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

- a. Faulty operation.
- b. Deterioration of metals, metal finishes, and other materials beyond normal wear.

2. Warranty Period: Two years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

A. Cabinet Outer Shell/Inner Shell: 14 gauge Type 304 stainless steel, No. 4 satin finish.

B. Top: Solid surface.

C. Base: 7 gauge Type 304 stainless steel, No. 4 satin finish.

D. Arm: 1-15/16-inch diameter, 12 gauge No. 4 stainless steel, satin finish.

E. Hub: 4-1/2-inch outside diameter Type 304 stainless steel, No. 4 satin finish.

#### 2.2 PEDESTRIAN CONTROL ENTRY GATES

A. Description Cabinet-style, waist-high turnstiles.

1. Basis-of-Design Products: Subject to compliance with requirements, provide one of these products or a comparable product by another manufacturer:

- a. Controlled Access, Inc. Executive Series Turnstiles and ADA Gates, Model EX100-R-ADA.
- b. Hayward Turnstiles, MR-200-ADA Handicap Accessible Gate.

B. Control Head: Self-centering, adjustable hydraulic shock suppression, hardened tool steel locking bar, cam and roller assemblies, permanently lubricated bearings.

- C. Dimensions: 39 inches high, 36-3/4 inches wide, 10-7/8 inches deep. Base: 8-7/8 inches.
- D. Keylock: Control direction of travel manually by key to lock or unlock, or may be used to override electronic controls.
- E. Electronic Interface: Interfacing to card readers, computer attendance system, and wireless remote controls.
- F. Electronic Counter: 6 digit resettable counter with LCD display and ten year lithium battery.

## 2.3 ELECTRIC OPERATORS

- A. General: Provide factory-assembled electric operation system of size and capacity recommended and provided by turnstile manufacturer; with control devices and accessories required for proper operation. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
- B. Comply with NFPA 70.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine conditions with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of turnstiles.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install turnstiles and accessories after other finishing operations, including painting, have been completed.
- B. Install units in accordance with manufacturer's written instructions and shop drawings.

### 3.3 ADJUSTING

- A. Adjust turnstiles to operate smoothly. Lubricate hardware and other moving parts.

### 3.4 CLEANING

- A. Clean soiled surfaces of turnstiles to remove dust, fingerprints, adhesives, and other foreign materials according to manufacturer's written instructions.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain turnstiles.

END OF SECTION 102226

## SECTION 131811 – MULTI-ACTIVITY COURT DASHER BOARD SYSTEM

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. The work of this Section shall include, but not be limited to, the following:
  - 1. Manufacture, supply and installation of complete factory prefabricated, dasher board system.

#### 1.3 QUALITY ASSURANCES

- A. Qualifications
  - 1. Employ persons skilled in this trade and proficient in the use of materials specified.
  - 2. Perform work in strict accordance with manufacturer's instructions.
  - 3. Dasher system manufacturer shall have a minimum of 5 years experience in manufacture, design and installation of dasher board projects.

#### 1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver on site in a safe manner.
- B. Deliver and store material packaged in protective wrapping as to protect finishes and surfaces from scratching and marring.

#### 1.5 SUBMITTALS

- A. Shop Drawings
  - 1. Shop drawings shall bear the professional stamp and signature of a professional engineer licensed to design structures.
  - 2. Shop drawings shall show, in appropriate scale, dimensions, details of the dasher board system, glazing assemblies, methods of joining, fastening, bonding, joint locations, methods of anchoring, sizes of anchorage's, glazing details and glazing methods, hardware, installation procedures, provision for expansion and contraction, details of other pertinent components of the work, and adjacent constructions to which work of this Section will be attached.
  - 3. Shop drawings shall indicate dimensioned layout and placement drawings for installation of floor inserts.

B. Samples

1. Submit samples of materials, finishes and colors for review.

C. Operation and Maintenance Data

1. On completion of installation, supply one copy of instructions covering removal and replacement of panel system, adjustments and other relevant operating and maintenance data.

1.6 QUALITY ASSURANCE

A. Qualifications

1. Board systems shall be provided by a firm having a minimum of 5 years satisfactory experience supplying and installing board systems, using persons trained and skilled in type of work required for both manufacturing and installing.

B. Mock-Ups

1. Supply a mock-up of the dasher board system at the fabricator's shop consisting of one flat section, including glazing shields and a gate.
2. Accepted mock-up shall represent the standard of quality required for the remainder of the dasher board system work.

C. Pre-Manufacturing Conference

1. Arrange for a pre-manufacturing conference including Contractor, Architect/Engineer, and dasher board manufacturer to co-ordinate the design and installation of the dasher boards, penalty boxes, team boxes and benches with the [owner] [project construction management firm] for satisfactory configuration and operation of the dasher board system.

1.7 WARRANTY

- A. Warrant the work of this Section against defects in materials and workmanship for a period of two (2) years from the date of [substantial completion] [substantial performance] of the contract. Misuse, abuse and/or accident not caused by normal use excluded. Glass breakage is excluded.

1.8 ADJUSTING

- A. Upon completion of the Work of this Section, inspect, test and adjust installation.
- B. Test all operable elements and ensure easy and smooth operation.

## PART 2 - PRODUCT

### 2.1 MANUFACTURERS

- A. Basis of Design: Subject to compliance with requirements, provide multi activity court dasher board system by the following or an APPROVED comparable product:
1. Sport Systems Unlimited Corp., 685 Rupert street, Waterloo, Ontario, Canada N2V 1N7  
Phone (519) 747-1856 Toll Free 1-877-778-5911 Fax (519) 747-3659
  2. Other APPROVED products, meeting the requirements of this Section, and complying with the provisions of the contract.
    - a. Mill finish, welded aluminum, welded galvanized or painted/powder coated steel framing components are NOT considered equivalent.
- B. Use of specific requirements set forth in the specification does not preclude the use of equivalent products by other manufacturers, but are given for the purpose of establishing a standard of design, quality of materials, product content, construction and workmanship.

### 2.2 SYSTEM DESCRIPTION

- A. Dasher panels shall be factory prefabricated in demountable sections.
1. Panelized dasher board system of prefabricated, removable modular panel sections having structural aluminum framing, 1-1/2" varying to 3" x 3" and high density polyethylene (HDPE) facing, 1/2" tempered glass, 4'-0" high and not more than 8'-0" wide or 8'-0" high and 4"-0" wide, with optional colored plastic cap rail and white plastic thresholds. Each panel to be factory pre glazed (the 1/2" tempered glass already installed in the panel). The tempered glass is to be adhered to the framing and is to be structurally glazed. The HDPE is to be fastened with 1/4-20 painted color matched machine screws.
  2. Typical sections shall consist of two vertical posts and two horizontal stringers. Frames shall be connected end to end with heavy-duty 3/8" bolts and shall be connected to floor slab concrete structure at the posts with 2- anchors every 8 ft. or 1- anchor every 4 ft. Each panel shall be made of extruded aluminum interlocking framing to form box sections with clear anodized finish, assembled into frames using high 1/4 -20 strength fasteners (3/8" bolts, nuts and washers)
  3. System to be provided for a flush internal playing surface with no obstructions. Transitions from glass to plastic facings shall be smooth. Note: Glass sections originate from field level to top horizontal allowing full spectator viewing.
- B. Gates: Provide quantity and location of gates as indicated on the drawings.
1. Access gates shall be built into standard (8'-0") sections and shall be (4') wide, left or right hand swing. Gate latch shall be a single latch type with rink side access. Double access gates shall be double gates incorporated into a standard (8'-0") panel, with locking hardware similar to equipment gates.
  2. Players gates shall be built into standard (8'-0") sections and shall be 30" wide, left or right hand swing.
  3. All gate hardware must be 1/4" thick stainless steel.
  4. Equipment gates shall be double gates with (8'-0") opening width (if required).
  5. Each equipment gate unit shall be equipped with locking clamps, retractable flush bolt, adjustable heavy duty spring loaded swivel casters and adjustable tie-rod assembly.

6. Hinge assemblies shall be constructed of (1/4") stainless steel. The hinge pins shall be minimum (5/8") diameter and removable.
- C. Thresholds:
1. Player gates and access gate thresholds shall have a (1") thick white HDPE covering that can be removed and replaced when wearing occurs.
  2. Thresholds of equipment gates shall be (2") above floor level.
  3. Thresholds of access gates shall be (2") above floor level.
  4. Thresholds of players' gates shall be (2") above floor level.
- D. Board Anchors:
1. All dasher boards shall be tightly fastened to the perimeter slab by means of 1/2" stainless steel threaded inserts, imbedded into the concrete curb (or footings) with epoxy. Supplied by the dasher board manufacturer.
- E. Extruded Aluminum:
1. Type: Aluminum Extrusions: ASTM B221, 6005-T5 alloy and temper
  2. Finish: All aluminum shall be CLEAR ANODIZED FINISH, Aluminum Association designation AA M12C22A21, 0.005, (0.2MIL) minimum coating thickness.
- F. Players and Officials' Boxes:
1. Boxes shall consist of dasher board materials.
- G. Supply extra materials and products to be stored by the Owner as follows:
1. A maintenance box containing fifty additional painted screws of each color and other miscellaneous parts for small repairs.
- H. Materials:
1. High Density Polyethylene (HDPE): High impact, integrally colored, high-density polyethylene, bright white and other colors as specified.
  2. Tempered Safety Glass: ASTM C1048, Kind FT, clear, colorless, fully toughened, heat tempered safety glass, 12 mm (1/2") thick. The roll wave distortion shall not exceed 0.127 mm (0.005") from peak to valley.
  3. Hardware: Stainless Steel.
  4. Fasteners: Zinc plated steel unless otherwise specified.
  5. Anchors (for field board panels): Stainless Steel.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Installation of multi-activity court dasher board system shall be performed by a qualified installer approved by manufacturer.
- B. Install dasher board system, and related work as specified and as detailed on the drawings. Set walls plumb, level, square and true and securely anchored in place, with all joints siliconed smooth. Provide all anchors, clips, fasteners and accessories for complete installation.

3.2 CLEANING AND PROTECTION

- A. Clean glass surfaces. Remove and replace damaged components. Adjust gates as required for proper and smooth operation.
- B. Advise contractor of protective measures required to prevent damage or deterioration of glass wall or gates during remainder of construction period.

END OF SECTION 131811

## SECTION 321445 – AGGREGATE PATHWAYS

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes material and labor requirements for construction with Decomposed granite or crushed 3/8" or 1/4" minus aggregate pathway with Stabilizer binder additives for the following items:
  - 1. Polymer Stabilized aggregate pathway
- B. Related Sections:
  - 1. Division 32 Section – Site Preparation
  - 2. Division 32 Section – Earthwork
  - 3. Division 32 Section – Granular Materials

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Perform gradation of decomposed granite material or 3/8" or 1/4" minus crushed aggregate in accordance with ASTM C 136 – Method for Sieve Analysis for Fine and Course.

#### 1.3 SUBMITTALS

- A. Products Data: For each product specified. Submit a 5 lb. sample and sieve analysis for grading of decomposed granite or crushed 3/8" or 1/4" minus aggregate to be sent to the binder manufacturer prior to any construction – (allow 2 week turn around). Must be approved by Landscape Architect and owner.
- B. Shop Drawings: Show details of installation, including plans and sections. Including installation around plant material and irrigation

#### 1.4 PROJECT / SITE CONDITIONS

- A. Field Measurements: Carefully verify the areas of paving indicated on the drawings. No adjustments will be made to the Contract Sum for variations in the existing conditions.
  - 1. Where surfacing is indicated to fit with other construction, verify dimensions of other construction by field measurements before proceeding with the work.
- B. Environmental Limitations: Do not install decomposed granite or crushed 3/8" or 1/4" minus aggregate paving during rainy conditions or below 40 degrees Fahrenheit and falling.

## 1.5 QUALITY ASSURANCE

- A. Install Qualifications: Installer to provide evidence to indicate successful experience in providing decomposed granite or crushed 3/8" or 1/4" minus aggregate surfacing containing polymer or soil binder additive or ability to follow installation instructions.
- B. Mock-ups: Install 4 ft wide x 10 ft. long mock-up of 3/8" or 1/4" minus crushed aggregate surfacing with Stabilizer additive at locations as directed by owner's representative.

## 1.6 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty executed by the installer agreeing to repair or replace components of stabilized surfacing that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to the following:
  - 1. Premature wear and tear, provided the material maintained in accordance with manufacturer's written maintenance instructions
  - 2. Failure of system to meet performance requirements.
- C. Warranty Period: Contractor shall provide warranty for performance of product. Contractor shall warranty installation of product for the time of one year from completion.
- D. Contractor shall provide, for a period of sixty days, unconditional maintenance and repairs as required.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Stabilizer for crushed aggregate surfaces provided by on of the following manufacturers:
  - 1. Stabilizer Solutions, Inc. 33 South 28<sup>th</sup> St. Phoenix, AZ 85034; phone 602.225.5900, 800.336.2468; fax 602.225.5902;
  - 2. TMT Enterprises; 1996 Oakland Road, San Jose, CA 95131; phone 408.432.4090

### 2.2 MATERIALS

- A. Decomposed Granite or 3/8" or 1/4" crushed aggregate screenings

1. Sand and crushed stone shall consist of inert materials that are hard and durable, with stone free from surface coatings and deleterious materials. Gradation requirements shall be as follows:
2. Crushed Stone Sieve Analysis Percentage of Weight Passing a Square Mesh Sieve ASSHTO T11-82 and T2782.

1/4" MINUS AGGREGATE GRADATION

U.S. Sieve No.	Percent Passing by Weight
# 3/8"	100
#4	90 – 100
#8	75 – 80
#16	55 – 65
#30	40 – 50
#50	25 – 35
#100	15 – 20
#200 to	10 – 15

3. Acceptable local supplier list to be provided by Architect.

B. Binder Materials

1. Patented, non-toxic, organic binder that is a colorless and odorless, concentrated powder that binds decomposed granite or crushed 3/8" or 1/4"

2.3 EXCESS MATEREIALS

- A. Provide Owner. with the following excess materials for use in future decomposed granite or 3/8" or 1/4" minus aggregate surfacing repair. 40 to 50 lb. bags of the aggregate paving blended with proper amount of Stabilizer.

PART 3 – EXECUTION

3.1 BINDER BLENDING

- A. Blend 12 to 16 lbs. (call manufacturer for exact blend) of Stabilizer per 1-ton of decomposed granite or crushed 3/8" or 1/4" minus aggregate screenings. It is critical that Stabilizer be thoroughly and uniformly mixed throughout decomposed granite or crushed 3/8" or 1/4" minus aggregate screenings. Mechanical mixing methods must be utilized. Bucket blending is not acceptable. Blending with a rake and or shovel is not acceptable. Blend material dry as water will make the material hard.

3.2 PLACEMENT

- A. After blending, place the Stabilized decomposed aggregate or 3/8" or 1/4" crushed aggregate screening on prepared sub-grade. Level to desired grade and cross section.
- B. Depth of pathways – 3" for heavy foot traffic and light vehicles.

### 3.3 WATERING

- A. Water heavily for full-depth moisture penetration of the pathway profile to activate the binder. To achieve saturation of pathway profile, 25 to 45 gallons of water per 1-ton must be applied. During water application randomly test for depth using a probing device, which reaches full depth.

### 3.4 COMPACTION

- A. Upon thorough moisture penetration, compact aggregate screening to 85% relative compaction by equipment such as; a 2 to 4 ton double drum roller or a 1,000 lb. single drum roller. The roller size will depend on the depth of the pathway. DO NOT use a vibratory plate compactor or vibration function on roller as vibration separates larger aggregate particles. Do not begin compaction for 6 hours after placement and up to 48 hours.
- B. If surface aggregate dries significantly quicker than subsurface material, lightly mist surface before compaction.
- C. Take care in compacting decomposed granite or crushed 3/8" or 1/4" minus aggregate screenings when adjacent to planting and irrigation systems. Hand tamping with 8" or 10" hand tamp recommended.

### 3.5 INSPECTION

- A. Finished surface of pathway shall be smooth, uniform and solid. There shall be no evidence of chipping or cracking. Cured and compacted pathway shall be firm throughout profile with no spongy areas. Loose material will not be present on the surface after installation, but may appear after use and according to environmental conditions. Pathway should remain stable underneath the loose granite on top. It is a "natural" looking pathway, yet stable throughout. Any significant irregularities in path surface shall be repaired to the uniformity of entire installation.

### 3.6 MAINTENANCE

- A. Remove debris, such as paper, grass clippings, eaves or other organic material by mechanically blowing or hand raking the surface as needed. Any plowing program required during winter months shall involve the use of a rubber baffle on the plow blade or wheels on the plow that lifts the blade 1/4" off the paving surface.
- B. During the first year, a minor amount of loose aggregate will appear on the paving surface (1/16" to 1/4"). If this material exceeds a 1/4", redistribute the material over the entire surface. Water thoroughly to the depth of 1". Compact with power roller of no less the 1000 lbs. This process should be repeated as needed.
- C. If cracking occurs, simply sweep fines into the cracks, water thoroughly and hand tamp with an 8" – 10" hand tamp plate.

### 3.7 REPAIRS

- A. Excavate damaged area to the depth of the Stabilized aggregate and square off sidewalls.
- B. If area is dry, moisten damaged portion lightly.
- C. Pre-bend the dry required amount of Stabilizer powder with the proper amount of aggregate in a concrete mixer.
- D. Add water to the pre-blended aggregate and Stabilizer. Thoroughly moisten mix with 25 to 45 gallons per 1-ton of pre-blended material or to approximately 10% moisture content.
- E. Apply moistened pre-blended aggregate to excavated area to finish grade.
- F. Compact with a 8" to 10" hand tamp or 250 to 300 pound roller. Keep traffic off areas for 12 to 48 hours after repair has been completed.

END OF SECTION