

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 283 (1991) Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION, INC. (BHMA)

ANSI/BHMA A156.1 (1988) Butts and Hinges (BHMA 101)

ANSI/BHMA A156.2 (1989) Bored and Preassembled Locks and Latches (BHMA 601)

ANSI/BHMA A156.3 (1994) Exit Devices (BHMA 701)

ANSI/BHMA A156.4 (1992) Door Controls - Closers

ANSI/BHMA A156.5 (1992) Auxiliary Locks & Associated Products

ANSI/BHMA A156.6 (1994) Architectural Door Trim (BHMA 1001)

ANSI/BHMA A156.7 (1988) Template Hinge Dimensions

ANSI/BHMA A156.8 (1994) Door Controls - Overhead Stops and Holders (BHMA 311)

ANSI/BHMA A156.12 (1992) Interconnected Locks & Latches (BHMA 611)

ANSI/BHMA A156.13 (1994) Mortise Locks & Latches (BHMA 621)

ANSI/BHMA A156.15 (1995) Closer Holder Release Devices (BHMA 321)

ANSI/BHMA A156.16 (1989) Auxiliary Hardware (BHMA 1201)

ANSI/BHMA A156.18 (1993) Materials and Finishes (BHMA 1301)

ANSI/BHMA A156.21 (1996) Thresholds

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80 (1995) Fire Doors and Fire Windows

NFPA 101 (1994) Code for Safety to Life from Fire in Buildings and Structures

STEEL DOOR INSTITUTE (SDI)

ANSI/SDI 100 (1991) Standard Steel Doors and Frames

1.2 SUBMITTALS

Submit the following in accordance with section entitled "Submittal Procedures."

1.2.1 SD-02, Manufacturer's Catalog Data

- a. Hardware items

1.2.2 SD-06, Instructions

- a. Installation

1.2.3 SD-07, Schedules

- a. Hardware schedule
- b. Keying system

1.2.3.1 Hardware Schedule

Prepare and submit hardware schedule in the following form:

- Hardware Quantity
- Hardware Type
- Manufacture's Number
- UL Rating (if fire rated)
- Reference Publication - ANSI / BHMA #
- Finish
- Key Control
- Manufacture's Name

Within 10 days after receipt of a contract for the finish hardware, prepare a complete schedule and submit 8 copies of the hardware schedule with 3 copies of catalogue cuts, **highlighted** to show each different hardware item to the Contracting Officer for review.

1.2.4 SD-18, Records

- a. Key biting

1.2.4.1 Chart Requirements

Submit key biting charts to the Contracting Officer prior to completion of the work. Include:

- a. Complete listing of all keys (AA1, AA2, etc.).
- b. Complete listing of all key cuts (AA1-123456, AA2-123458).
- c. Tabulation showing which key fits which door.
- d. Copy of floor plan showing doors and door numbers.
- e. Listing of 20 percent more key cuts than are presently required in each master system.

1.2.5 SD-19, Operation and Maintenance Manuals

- a. Hardware Schedule items, Data Package 1

Submit data package in accordance with Section 01781, "Operation and Maintenance Data."

1.3 QUALITY ASSURANCE

SUPPLIER QUALIFICATIONS: The hardware supplier must have in his/her employment an architectural Hardware Consultant (AHC), as recognized by the Door And Hardware Institute, with a minimum of 10 years of Architectural Hardware experience, who shall be responsible for the detailing , scheduling, and ordering of the finish hardware for this Contract.

1.3.1 Hardware Manufacturers and Modifications

Provide, as far as feasible, locks, hinges, pivots, and closers of one lock, hinge, pivot, or closer manufacturer's make. Modify hardware as necessary to provide features indicated or specified.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver hardware in original individual containers, complete with necessary appurtenances including fasteners and instructions. Mark each individual container with item number as shown in hardware schedule. Deliver permanent keys and removable cores to the Contracting Officer, either directly or by certified mail. Deliver construction master keys with the locks.

PART 2 - PRODUCTS

2.1 TEMPLATE HARDWARE

Hardware to be applied to metal or to prefinished doors shall be made to template. Promptly furnish template information or templates to door and frame manufacturers. Template hinges shall conform to ANSI/BHMA A156.7. Coordinate hardware items to prevent interference with other hardware.

2.2 HARDWARE FOR FIRE DOORS AND EXIT DOORS

Provide all hardware necessary to meet the requirements of NFPA 80 for fire doors and NFPA 101 for exit doors, as well as to other requirements specified, even if such hardware is not specifically mentioned under paragraph entitled "Hardware Schedule." Such hardware shall bear the label of Underwriters Laboratories, Inc., and be listed in UL BMD or labeled and listed by another testing laboratory acceptable to the Contracting Officer.

2.3 HARDWARE ITEMS

Hinges, pivots, locks, latches, exit devices, bolts, and closers shall be clearly and permanently marked with the manufacturer's name or trademark where it will be visible after the item is installed. For closers with covers, the name or trademark may be beneath the cover.

2.3.1 Hinges

ANSI/BHMA A156.1, 4 1/2 by 4 1/2 inches unless otherwise specified. Construct loose pin hinges for exterior doors and reverse-bevel interior doors so that the pins will be nonremovable when door is closed.

2.3.2 Locks and Latches

2.3.2.1 Cylindrical Locks and Latches

ANSI/BHMA A156.2, Series 4000, Grade 1. Provide cylindrical locks as manufactured by Schlage, no substitutes. The locksets and latchsets shall be the D-Series with the Rhodes Lever Design.

2.3.3 Exit Devices

ANSI/BHMA A156.3, Grade 1.

Exit devices shall be of the push-through pad design, no exposed touch bar fasteners, no exposed cavities when operated.

Provide certification by independent testing laboratory that specified devices have completed over 1,000,000 cycles and still perform in accordance to ANSI/BHMA A156.3 - 1994.

All internal parts shall be of cold-rolled steel with zinc dichromate coating.

Compression spring engineering.

Non-handled basic device design with center case interchangeable with all functions.

All latchbolts for wide stile devices shall be deadlocking with 3/4" throw and have a self-lubricating coating to reduce friction and wear.

Device push bar must release when a force of 32 pounds, or less, of pressure is applied when a force of 250 pounds is applied to the door.

Device shall bear UL label for fire and or panic as may be required.

All surface strikes shall be roller type and utilize a plate underneath to prevent movement.

Lever Trim: "Breakaway" design, forged brass or bronze escutcheon with a minimum of .130" thickness, match lockset lever design.

Removable Mullions: Removable with single turn of building key, securely reinstalled without need for key.

Furnish glass bead kits for vision lites where required. Devices for flush doors must fit flat on the door.

2.3.4 Cylinders and Cores

Provide cylinders and cores for new locks, including locks provided under other sections of this specification. Cylinders and cores shall have six pin tumblers. Locks, Cylinders, and Cores shall be the products of one manufacturer.

Provide extension of the existing keying system. Existing locks and cylinders were manufactured by Schlage and have interchangeable cores. Schlage, no substitutes, shall manufacture new locks and cylinders. Provide construction interchangeable cores.

2.3.5 Lock Trim

Cast or forged construction and commercial plain design.

2.3.5.1 Lever Handles

Provide lever handles in lieu of knobs. Lever handles for exit devices shall meet the test requirements of ANSI/BHMA A156.13 for mortise locks. Lever handles at Exit Devices shall have a breakaway feature such as a weakened spindle or a shear key to prevent irreparable damage to the lock when a force in excess of that specified in ANSI/BHMA A156.13 is applied to the lever handle. Lever handles shall return to within 1/2 inch of the door face.

2.3.6 Keys

Furnish one file key, one duplicate key, and one working key for each lock and cylinder/core. Furnish 5 ea. master keys of each type, 15 ea. construction master keys, and 2 ea. control keys for removable cores (both construction and final). Furnish a quantity of key blanks equal to 50 percent of the total number of file keys. Stamp each key with appropriate key control symbol and "U.S. property - Do not duplicate." Do not place room number on keys.

2.3.7 Closers

ANSI/BHMA A156.4, Series C02000, Grade 1, with PT 4D,E, &H. Provide with brackets, arms, mounting devices, fasteners, full size covers, and other features necessary for the particular application. Provide closers that are multi-sized. Provide manufacturer's 10 year warranty. All closers shall be fully hydraulic, full rack and pinion action with a one piece forged steel piston 1-1/2" minimum diameter and have a pinion shaft 5/8" minimum diameter. All parallel arm closers (C02021) shall be supplied with heavy duty arms.

2.3.7.1 Identification Marking

Engrave each closer with manufacturer's name or trademark, date of manufacture, and manufacturer's size designation located to be visible after installation.

2.3.8 Overhead Holders

ANSI/BHMA A156.8.

2.3.9 Door Protection Plates

ANSI/BHMA A156.6.

2.3.9.1 Sizes of Kick Plates

Width for single doors shall be 2 inches less than door width; width for pairs of doors shall be one inch less than door width. Height of kick plates shall be 10 inches for flush doors.

2.3.10 Continuous Hinges

Continuous hinges shall be full height pin in barrel piano type hinge providing full height door support. Each knuckle shall be 2" including nylon bushing at each separation for quiet, smooth, self-lubricating operation.

Continuous hinge shall:

- 1) be able to carry fire labels for fire doors and frames up to 3 hours as issued by either Warnock Hersey Int. or UL.
- 2) be made of 6063-T5 anodized aluminum or 14 gauge #304 stainless steel.
- 3) carry doors up to 600 lbs. .
- 4) have a symmetrical templated hole pattern with a minimum of 21 fasteners on the door and 21 fasteners on the frame, and be non-handed.
- 5) meet 1,500,000 cycle test.

2.3.11 Door Stops and Silencers

ANSI/BHMA A156.16. Silencers Type L03011. Provide three silencers for each single door, two for each pair.

2.3.12 Thresholds

Threshold-door bottom seal to be specified. ANSI/BHMA A156.21.

2.3.13 Weather Stripping

A set shall include head and jamb seals and sweep strips. Air leakage of weather stripped doors shall not exceed 1.25 cubic feet per minute of air per square foot of door area when tested in accordance with ASTM E 283. Weather stripping shall be one of the following:

2.3.14 Extruded Aluminum Retainers

Extruded aluminum retainers not less than 0.050 inch wall thickness with vinyl, neoprene, silicone rubber, or polyurethane inserts. Aluminum shall be clear or dark bronze anodized as noted in the hardware sets.

2.4 FASTENERS

Provide fasteners of proper type, quality, size, quantity, and finish with hardware. Fasteners exposed to weather shall be of nonferrous metal or stainless steel. Provide fasteners of type necessary to accomplish a permanent installation. All closers and exit devices shall be attached by means of sex bolts on ALL doors.

2.5 KEY CABINET AND CONTROL SYSTEM

ANSI/BHMA A156.5, E8351 (300 hooks).

PART 3 - EXECUTION

3.1 INSTALLATION

Install hardware in accordance with manufacturers' printed instructions. Fasten hardware to wood surfaces with full-threaded wood screws or sheet metal screws. Provide machine screws set in expansion shields for fastening hardware to solid concrete and masonry surfaces. Provide toggle bolts where required for fastening to hollow core construction. Provide through bolts where necessary for satisfactory installation.

3.1.1 Weather Stripping Installation

Handle and install weather stripping so as to prevent damage. Provide full contact, weather-tight seals. Doors shall operate without binding.

3.1.1.1 Stop-Applied Weather Stripping

Fasten in place with color-matched sheet metal screws not more than 9 inches o.c. after doors and frames have been finish painted.

3.2 FIRE DOORS AND EXIT DOORS

Install hardware in accordance with NFPA 80 for fire doors, NFPA 101 for exit doors.

3.3 HARDWARE LOCATIONS

ANSI/SDI 100, unless indicated or specified otherwise.

- a. Kick Plates: Push side of single-acting doors. Both sides of double-acting doors.

3.4 KEY CABINET AND CONTROL SYSTEM

Locate where indicated. Tag one set of file keys and one set of duplicate keys. Place other keys in appropriately marked envelopes, or tag each key. Furnish complete instructions for setup and use of key control system. On tags and envelopes, indicate door and room numbers or master key.

3.5 FIELD QUALITY CONTROL

After installation, protect hardware from paint, stains, blemishes, and other damage until acceptance of work. Submit notice of testing 15 days before scheduled, so that testing can be witnessed by the Contracting Officer. Adjust hinges, locks, latches, bolts, holders, closers, and other items to operate properly. Demonstrate that permanent keys operate respective locks, and give keys to the Contracting Officer. Correct, repair, and finish, as directed, errors in cutting and fitting and damage to adjoining work.

3.6 FINISHES

All hardware shall be: Satin Chrome 626 / 652 / US26D

3.7 HARDWARE SETS

HDW SET 1

DOOR NUMBER: 101A,103B

EACH TO HAVE:

CONTINUOUS HINGE	2 EA	FM-100 X D.H.	AL	M
EXIT DEVICE	1 EA	TYPE 1 FUNCTION 03 GRADE 1		
CYLINDER	1 EA	20-057 x 36-082	26D	S
EXIT DEVICE	1 EA	TYPE 1 FUNCTION 02 GRADE 1		
MULLION	1 EA	KR4954	SP28	VD
CYLINDER	1 EA	26-061	26D	S
CLOSER	2 EA	C02021 X PA BRACKET FOR ALUM. FRAME		
O/H DOOR STOP	2 EA	C01541 (SET @ 100 DEGREES)		
THRESHOLD	1 EA	J32130 5" X 1/2" X D.W.		
DOOR BOTTOM	1 EA	BY DOOR SUPPLIER		
WEATHERSTRIP	1 SET	BY FRAME SUPPLIER		

HDW SET 2

DOOR NUMBER: 101B,103A

EACH TO HAVE:

CONTINUOUS HINGE	2 EA	FM-100 X D.H.	AL	M
PUSH BAR	2 EA	J501		
PULL	2 EA	J402 10" CTC		
CLOSER	2 EA	C02021 X PA BRACKET FOR ALUM. FRAME		
O/H DOOR STOP	2 EA	C01541 (SET @ 100 DEGREES)		
SILENCER	2 EA	GJ66	GREY	GJ

HDW SET 3

DOOR NUMBER: 105,106,107,108,109,110,111,112,113,114,116,117,118,119,120,
 121,122,123,124,126,127,128,129,130,131,134,136,137,138,139,
 140,141,142,143,144,146,147,148,149,150,155,156,157,158,159,
 160,161,162,163,165,166,167,168,169,170,171,172,173,175,177,
 203,204,205,206,207,208,209,210,211,212,213,214,217,218,219,
 220,221,222,223,224,225,226,227,228,229,231,233,237,238,239,
 240,241,242,243,244,245,246,249,250,251,252,253,254,255,256,
 257,258,259,260,261,262,263,264,265,266,267,269,270,271,272,
 273,274,275,276,277,278,279,280,288,289,304,305,306,307,309,
 310,311,312,313,314,316,317,318,319,320,321,322,323,324,325,
 326,327,333,334,335,336,338,339,343,344,345,346,347,348,349,
 350,351,352,353,354,355,356,357,358,359,360,362,363,364,365,
 366,367,368,369,370

EACH TO HAVE:

BUTTS	3 EA	A8112		
LOCKSET	1 EA	D53RD-RHO 14-019 10-025	26D	S
WALL STOP	1 EA	L02251		
SILENCER	3 EA	L03011		

HDW SET 4

DOOR NUMBER: 115A,145A,164A,216,248,268,315,342,361

EACH TO HAVE:

BUTTS	3 EA	A8111 X NRP		
EXIT DEVICE	1 EA	TYPE 1 FUNCTION 08 GRADE 1 – FIRE RATED		
CYLINDER	1 EA	20-057 x 36-082	26D	S
CLOSER	1 EA	C02011		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
SMOKE SEAL	1 EA	9595 X D.S.		NG

HDW SET 5

DOOR NUMBER: 115B,145B,164B

EACH TO HAVE:

BUTTS	3 EA	A8111 X NRP		
EXIT DEVICE	1 EA	TYPE 1 FUNCTION 03 GRADE 1		
CYLINDER	1 EA	20-057 x 36-082	26D	S
CLOSER	1 EA	C02021		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
O/H DOOR STOP	1 EA	C01541 (SET @ 100 DEGREES)		
THRESHOLD	1 EA	J32130 5" X 1/2" X D.W.		
SWEEP	1 EA	200N X D.W.	AL	NG
WEATHERSTRIP	1 SET	160 X D.S.	AL	NG
DRIP STRIP	1 EA	16AD X D.W. +4"	AL	NG

HDW SET 6

DOOR NUMBER: 125A
 EACH TO HAVE:

BUTTS	3 EA	A8112 NRP	26D	
LOCKSET	1 EA	D70RD-RHO 14-019 10-025	26D	S
CLOSER	1 EA	C02021		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
HOLDER	1 EA	L11381		
SILENCER	3 EA	L03011	GREY	

HDW SET 7
 DOOR NUMBER: 125B
 EACH TO HAVE:

BUTTS	3 EA	A8111 X 5" X 4.5" NRP		
LOCKSET	1 EA	D70RD-RHO 14-019 10-025	26D	S
CLOSER	1 EA	C02021		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
O/H HOLDER STOP	1 EA	C01521 (SET @ 100 DEGREES)		
THRESHOLD	1 EA	J32130 5" X 1/2" X D.W.		
SWEEP	1 EA	200N X D.W.	AL	NG
WEATHERSTRIP	1 SET	160 X D.S.	AL	NG
DRIP STRIP	1 EA	16AD X D.W. +4"	AL	NG

HDW SET 8
 DOOR NUMBER: 151,181,234,236,286,308,328,329,330,331,337,371,377,378
 EACH TO HAVE:

BUTTS	3 EA	A8112	26D	
LOCKSET	1 EA	D70RD-RHO 14-019 10-025	26D	S
CLOSER	1 EA	C02011		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
SILENCER	3 EA	L03011	GREY	

HDW SET 9
 DOOR NUMBER: 152,153,182,183,184,232,235,285,287,290,291,332,373,379,381
 EACH TO HAVE:

BUTTS	3 EA	A8112	26D	
LOCKSET	1 EA	D80RD-RHO 14-019 10-025	26D	S
CLOSER	1 EA	C02011		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
SILENCER	3 EA	L03011	GREY	

HDW SET 10

DOOR NUMBER: 185
 EACH TO HAVE:

BUTTS	3 EA	A8111 X NRP 5" X 4.5"		
EXIT DEVICE	1 EA	TYPE 1 FUNCTION 03 GRADE 1		
CYLINDER	1 EA	20-057 x 36-082	26D	S
CLOSER	1 EA	C02021		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
O/H DOOR STOP	1 EA	C01541 (SET @ 100 DEGREES)		
THRESHOLD	1 EA	J32130 5" X 1/2" X D.W.		
SWEEP	1 EA	200N X D.W.	AL	NG
WEATHERSTRIP	1 SET	160 X D.S.	AL	NG
DRIP STRIP	1 EA	16AD X D.W. +4"	AL	NG

HDW SET 11
 DOOR NUMBER: 154
 EACH TO HAVE:

BUTTS	3 EA	A8112	26D	
LOCKSET	1 EA	D80RD-RHO 14-019 10-025	26D	S
CLOSER	1 EA	C02011		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
THRESHOLD	1 EA	411 X D.W.	AL	NG
AUTO DOOR BTM	1 EA	4447S X D.W.	AL	NG
SOUND SEAL	1 EA	134NA X D.S.	AL	NG

HDW SET 12
 DOOR NUMBER: 176,281
 EACH TO HAVE:

BUTTS	3 EA	A8112	26D	
LOCKSET	1 EA	D80RD-RHO 14-019 10-025	26D	S
DEADBOLT	1 EA	B660R	26D	S
CLOSER	1 EA	C02011		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		
SILENCER	3 EA	L03011	GREY	

HDW SET 13
 DOOR NUMBER: 178,179,282,283,374,375
 EACH TO HAVE:

BUTTS	3 EA	A8111		
PUSH PLATE	1 EA	J301 4" X 16"		
PULL PLATE	1 EA	J405 4" X 16"		
CLOSER	1 EA	C02021		
KICKPLATE	1 EA	J102-.050 X 10" X 2" LDW		
WALL STOP	1 EA	L02101		

SILENCER 3 EA L03011

GREY

HDW SET 14

DOOR NUMBER: 180,284,376

EACH TO HAVE:

BUTTS 3 EA A8112 NRP

26D

LOCKSET 1 EA D80PD-RHO 14-019 10-025

26D S

CLOSER W/ STOP ARM 1 EA C02021 X PT4G

SILENCER 3 EA L03011

GREY

HDW SET 15

DOOR NUMBER: 340

EACH TO HAVE:

BUTTS 3 EA A8112

26D

PRIVACY LATCH 1 EA D40S-RHO 14-001 10-025

26D S

WALL STOP 1 EA L02251

SILENCER 3 EA L03011

GREY

HDW SET 16

DOOR NUMBER: 380

EACH TO HAVE:

BUTTS 3 EA A8112 NRP

26D

LOCKSET 1 EA D80PD-RHO 14-019 10-025

26D S

CLOSER 1 EA C02021

WALL STOP 1 EA L02101

SILENCER 3 EA L03011

GREY

Manufacturer's numbers used in this schedule are for reference only.

Manufacturers of EQUAL products are acceptable.

NG = National Guard

M= Markar

GJ = Glynn Johnson

-- END OF SECTION --