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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies architectural hinges. These products are manufactured by Hager Companies. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

**SECTION 08 71 00
 DOOR HARDWARE**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Butt Hinges:
 - a. Full mortise hinges.
 - b. Half mortise hinges.
 - c. Full surface hinges.
 - d. Half surface hinges.
 - 2. Electric Hinges:
 - a. Full mortise exposed electric hinges.
- B. Full mortise concealed electric hinges.
 - 1. Air Transfer Hinges:
 - a. Full mortise air transfer hinges.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

- C. Related Sections:
 - 1. Section [01 33 00 - Submittal Procedures] [_____].
 - 2. Section [01 45 00 - Quality Control] [_____].
 - 3. Section [01 78 00 - Closeout Submittals] [_____].
 - 4. Section [08 11 00 - Metal Doors and Frames] [_____].
 - 5. Section [08 11 16 - Aluminum Doors and Frames] [_____].
 - 6. Section [08 14 16 - Flush Wood Doors] [_____].

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation.

Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 01 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.02 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA):
 - 1. ANSI/BHMA A156.1 Butts and Hinges.
 - 2. ANSI/BHMA A156.7 Hinge Templates.
 - 3. ANSI/BHMA A156.18 Materials and Finishes.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 01 Submittal Procedures Section.

1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures.
- B. Product Data: Submit manufacturer's complete product literature for specified hardware items, detailed installation diagrams and instructions, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Manufacturer's SPEC-DATA product sheet.
- C. Samples:

Specifier Note: Describe specific types and quantities of samples required to determine style, finish or other characteristics.

- 1. Submit samples upon request.
- 2. Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
- 3. After approval, samples will be returned for incorporation into work.
- D. Templates:
 - 1. Submit templates detailing installation procedures, including layout, dimensions and placement of hardware. Include:
 - a. Information demonstrating compliance with ANSI/BHMA A156.7 for builder's template hinge sizes.
- E. Closeout Submittals: Submit the following:
 - 1. Warranty: Manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1.04 QUALITY ASSURANCE

- A. Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

1.05 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 01 Product Requirements.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery, Storage and Protection:
 - 1. Deliver, store and handle in accordance with Section [01 61 00 - Common Product Requirements] [_____].
 - 2. Deliver, store and handle materials in accordance with manufacturer's written instructions.

3. Deliver in original packaging with labels and identification intact.
4. Ship hardware items in lots coordinated with openings, as numbered in opening schedule.
5. Inspect hardware items upon delivery to ensure that specified products have been received.
6. Store hardware items in secure, dry location and protected from weather until ready for installation.

D. Waste Management and Disposal:

Specifier Note: Environment: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.

1. Separate waste materials for [reuse] [and] [recycling] [_____] in accordance with Section [01 74 19 - Construction Waste Management and Disposal] [_____].
2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
3. Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] [_____] packaging material [in appropriate onsite bins] [_____] for recycling.

1.06 PROJECT CONDITIONS

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

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 01 Closeout Submittals (Warranty) Section.

1.07 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents. Manufacturer's standard warranty: one calendar year from date of delivery to Project.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 HAGER ARCHITECTURAL HINGES

- A. Manufacturer: Hager Companies.
 1. Contact: 139 Victor St., St. Louis, MO 63104; Telephone: (800) 325-9995, (314) 772-4400; Fax: (800) 782-0149; Email: webmaster@hagerco.com; website: www.hagerco.com.
- B. Proprietary Products/Systems: Hager Hinges.

Specifier Note: Repeat the following article when more than one type of full mortise hinges is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

1. Full Mortise Hinges:
 - a. Applicable Standard: ANSI/BHMA A156.1.
 - b. Knuckle: [Two] [Three] [Five] [_____].
 - c. Bearings: [Plain] [Concealed] [Ball] [Anti-friction] [_____].
 - d. Weight: [Standard] [Heavy] [_____].
 - e. Material: [Steel] [Brass] [Stainless steel] [_____].
 - f. Pin and Plug: [Non-rising removable concealed {Steel} {Brass} {Stainless steel} pin and plug] [Non-rising removable {Steel} {Brass} {Stainless steel} pin with button tip and plug] [{Steel} pin] [_____].
 - g. Throw: [Normal] [Wide] [_____].

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA finish designations are available on the Hager Companies website.

- h. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- i. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- j. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies full mortise hinge numbers are: two-knuckle 920, AB920, AB923, AB930, AB933; three-knuckle 700, 800, AB700, AB800, AB700 wide throw, AB800 wide throw, AB750, AB850, AB750 wide throw, AB850 wide throw; five-knuckle 1279, 1191, BB1279, BB1191, CB1191, 1279 wide throw, 1191 wide throw, BB1279 wide throw, BB1191 wide throw, BB1168, BB1199, BB1168 wide throw, BB1199 wide throw.

- k. Acceptable Material: Hager Companies full mortise hinge Item Number [_____].

Specifier Note: Repeat the following article when more than one type of half mortise hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

2. Half Mortise Hinges:

- a. Applicable Standard: ANSI/BHMA A156.1.
- b. Knuckle: [Three] [Five] [_____].
- c. Bearings: [Concealed] [Ball] [_____].
- d. Weight: [Standard] [Heavy] [_____].
- e. Material: [Steel] [Brass] [Stainless steel] [_____].
- f. Pin and Plug: [Non-rising removable concealed {Steel} {Brass} {Stainless steel} pin] [Non-rising removable {Steel} {Brass} {Stainless steel} pin and plug] [Reversible] [Beveled surface leaf] [_____].

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA finish designations are available on the Hager Companies website.

- g. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- h. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- i. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies half mortise hinge numbers are three-knuckle AB 701, AB801, AB751, AB851; five-knuckle 1129, BB1129, BB1109, BB1138, BB2098.

- j. Acceptable Material: Hager Companies half mortise hinge Item Number [_____].

Specifier Note: Repeat the following article when more than one type of full surface hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

3. Full Surface Hinges:

- a. Applicable Standard: ANSI/BHMA A156.1.
- b. Knuckle: [Three] [Five] [_____].
- c. Bearings: [Concealed] [Ball] [_____].
- d. Weight: [Standard] [Heavy] [_____].
- e. Material: [Steel] [Brass] [Stainless steel] [_____].
- f. Pin and Plug: [Non-rising, removable, concealed {Steel} {Brass} {Stainless steel} pin] [Non-rising removable [Concealed] {Steel} {Brass} {Stainless steel} pin head {And plug}] [Reversible] [Beveled surface leaf] [_____].

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA

finish designations are available on the Hager Companies website.

- g. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- h. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- i. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies full surface hinge numbers are three-knuckle AB 702, AB802, AB752, AB852; five-knuckle BB2171, BB2110, BB2169, BB2109, BB2168, BB2108.

- j. Acceptable Material: Hager Companies full surface hinge Item Number [_____].

Specifier Note: Repeat the following article when more than one type of half surface hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

4. Half Surface Hinges:

- a. Applicable Standard: ANSI/BHMA A156.1.
- b. Knuckle: [Three] [Five] [_____].
- c. Bearings: [Plain] [Concealed] [Ball] [_____].
- d. Weight: [Standard] [Heavy] [_____].
- e. Material: [Steel] [Brass] [Stainless steel] [_____].
- f. Pin and Plug: [Non-rising, removable, concealed {Steel} {Brass} {Stainless steel} pin] [Non-rising {Concealed} {Steel} {Brass} {Stainless steel} pin head, {Button tips} {And} {Reversible} plug{s}] [Beveled surface leaf] [_____].

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA finish designations are available on the Hager Companies website.

- g. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- h. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- i. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies half surface hinge numbers are three-knuckle AB 703, AB803, AB753, AB853; five-knuckle 1173, BB1173, BB2112, BB1163, BB2113.

- j. Acceptable Material: Hager Companies half surface hinge Item Number [_____].

Specifier Note: Repeat the following article when more than one type of full mortise exposed electric hinge or full mortise concealed electric hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

5. Electric Hinges:

- a. Applicable Standard: ANSI/BHMA A156.1.
- b. Full mortise, [Exposed {Contact} {Switch} {Contact/switch} type] [Concealed {Monitor only} {Through-wire only} {Electric through-wire with monitoring} type].
- c. Knuckle: [Three] [Five] [_____].
- d. Bearings: [Ball] [Anti-friction] [_____].
- e. Weight: [Standard] [Heavy] [_____].
- f. Material: [Steel] [Brass] [Stainless steel] [_____].
- g. Hinge Pins: [Non-removable pins (NRP)] [Non-field removable].
- h. Listing: UL.

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA finish designations are available on the Hager Companies website.

- i. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- j. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- k. [Contacts] [Conductors]: [1] [2] [4] [6] [8] [10] [12].
- l. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies full mortise exposed electric hinge numbers are: three-knuckle E2, E1S, E2/E1S, five-knuckle E2, E1S, E2/E1S; full mortise concealed electric hinge numbers are: three-knuckle EMN, ETW, ETM, five-knuckle EMN, ETW, and ETM.

- m. Acceptable Material: Hager Companies full mortise electric hinge Item Number [_____].

Specifier Note: Repeat the following article when more than one type of full mortise hinge/air transfer hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

- 6. Air Transfer Hinges:
 - a. Applicable Standard: ANSI/BHMA A156.1.
 - b. Full mortise, with plastic tubing and quick-disconnect fittings.
 - c. Knuckle: [Three] [Five] [_____].
 - d. Bearings: [Ball] [Anti-friction] [_____].
 - e. Weight: [Standard] [Heavy] [_____].
 - f. Material: [Steel] [Brass] [Stainless steel] [_____].
 - g. Hinge Pins: Non-field removable.
 - h. Listing: UL.

Specifier Note: Refer to Hager Companies product catalog for product finish designations and availability per series selection. BHMA finish designations are available on the Hager Companies website.

- i. Finish: To ANSI/BHMA A156.18, BHMA [_____].
- j. Hinge Size: [_____inches (_____) mm] x [_____inches (_____) mm].
- k. Screws: [_____].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project. Hager Companies full mortise hinge/air transfer numbers are: three-knuckle AB700, AB800, AB750, AB850; five-knuckle BB1191, BB1279, BB1168, BB1199.

- l. Acceptable Material: Hager Companies full mortise hinge/air transfer Item Number [_____].
- 7. Welded Hinges: Full surface welded steel hinges, to ANSI/BHMA A156.18, BHMA [_____], five knuckle, plain bearings, heavyweight, riveted steel pin, flat surface, no swage and no holes. Hinge size: [_____inches (_____) mm] x [_____inches (_____) mm].

Specifier Note: Select or delete the following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project.

- a. Acceptable Material: Hager Companies full surface welded steel hinges Item Number [1850] [_____].

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 01 Project Requirements (Product Substitutions Procedures) Section.

2.02 PRODUCT SUBSTITUTIONS

-
- A. Substitutions: No substitutions permitted.

2.03 ACCESSORIES

- A. Mortar Box: Galvanized steel 0.040 inches (1.02 mm) thick, size 9 inches x 7 inches (229 x 178 mm) x inside dimension 1 3/4 inches x 1 3/4 inches (44 x 44 mm), complete with top and bottom knockouts.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Hager Companies SPEC-DATA sheets for hinges.
- B. Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hinges.
 - 1. Furnish manufacturer's instructions for proper installation of each hinge component.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.

3.03 INSTALLATION

Specifier Note: Note there are special hinge mounting height requirements for elementary schools and accessible doors.

Specifier Note: Check frame types for hinge mounting locations. Some frame manufacturers have predetermined mounting heights for hinges. Hager Companies Standard Hardware Location Chart can be found on their website: <http://www.hagerco.com>.

- A. Install hinges to standard hardware location dimensions in accordance with Hager Companies Standard Hardware Locations Chart.
- B. Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- C. Electric Hinges: Install mortar box in grout-filled frames for installation of electric hinges; install electric hinges in center hinge position only.

3.04 ADJUSTING

- A. Adjust door hinges for optimum, smooth operating condition.
- B. Lubricate hinges where directed by manufacturer.
- C. Adjust door hinges to provide tight fit at contact points with frames.

3.05 CLEANUP

- A. Proceed in accordance with Section [01 74 00 - Cleaning and Waste Management] [_____].
- B. Clean hinges with damp rag and approved nonabrasive cleaner, and polish hinges in accordance with manufacturer's instructions.
- C. Remove protective material from hinges where present.
- D. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION