

HOSPITAL STANDARDS

203.202 BUILDING COMPONENTS, BUILDING SHELL, EXTERIOR ENCLOSURE

This document contains requirements for building shell elements for a hospital building and is in alignment with the UniFormat II, Level 2 classification – B20. The document is subdivided into the following parts per the UniFormat II, Level 3 classifications.

UNIFORMAT II classification						MoP Document Number
Level 1 Major Elements		Level 2 Group Elements		Level 3 Individual Elements		
B	Shell	B20	Exterior Enclosure	B2010	Exterior Walls	203.202
				B2020	Exterior Windows	
				B2030	Exterior Doors	

ELEMENT B2010, EXTERIOR WALLS. Includes general design requirements for exterior wall construction with facing materials, vapor retarders, insulation, etc. Specific items of note include:

1. Design requirements
2. Parapet walls
3. Veneer conditions
4. Sealants
5. Contract Document requirements

ELEMENT B2020, EXTERIOR WINDOWS. Includes general design requirements for windows, storefronts, curtain wall assemblies, etc. Specific items of note include:

1. Frame requirements
2. Design requirements
3. Glazing requirements
4. Testing requirements

ELEMENT B2030, EXTERIOR DOORS. Includes general design requirements exterior man doors, aluminum entrance systems, etc. Specific items of note include:

1. Hollow metal doors and frames
2. Aluminum entrance systems

ELEMENT B2010, EXTERIOR WALLS

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PART 1 - GENERAL**1.01 OVERVIEW**

- A. Includes exterior wall construction with facing materials, back-up construction, framing, insulation, vapor retarders, louvers, and soffits.

PART 2 - DESIGN CRITERIA**2.01 GENERAL**

- A. Exterior wall u-values and air leakage shall meet or exceed the values noted in the current edition of ANSI/ASHRAE/IESNA 90.1, and in accordance with all other governing codes and regulations.
- B. Design team shall confirm, by calculation method the wall performance including R value, U value, and dew point location. Provide report to BJC Project Manager.
- C. Minimize horizontal projections in exterior wall systems. Carefully detail projections and specify appropriate materials so as to prevent staining and to prevent water infiltration.
- D. Roof edge protection (parapets, guardrails, or combinations of these) shall be a minimum of 42 inches high above the finished roof system surface, unless approved in writing by BJC Project Manager and BJC Risk Management. If maintained across the entire roof area, tie-offs and fall arrest systems may not be required for anyone accessing that roof area according to OSHA requirements.

2.02 PARAPET WALL

- A. Roofing membrane shall extend up the inside face of the parapet and lap over the top of the parapet and return down the outer face a minimum of 2”.
- B. At parapet caps, provide a prefinished metal coping, the top of which slopes toward the exterior of the building. Exposure on the outside face of the coping shall be a minimum of 4”. A secondary flashing shall be provided under the metal coping/cap flashing.
- C. Provide parapet scuppers if overflow drains are not utilized on the roof. Where overflow drains discharge at or near ground level, provide a removable stainless steel wire screen at opening. Overflow discharge shall be located in an area that is visible but not located close to building entrances or where storm water discharge will wash across pedestrian areas.

1. Coordinate location of thru wall scuppers and leaders to avoid interference with exterior openings, signage and other wall mounted objects. Coordination with BJC Project Manager for owner-furnished items including but not limited to exterior signage is required.
- D. Soffits shall be designed to withstand both positive and negative wind loads in accordance with applicable building code. Soffit systems utilizing flexible wire suspension shall incorporate rigid framing members or other means to comply with negative pressure design requirements.

2.03 MASONRY VENEER

- A. **In veneer wall construction, use of a vapor barrier on the inside of the wall is prohibited.** Confirm by calculation method the wall performance including R value, U value, and dew point location.
- B. Masonry veneer walls shall be laterally braced as required with adjustable wire brick ties and attached into structural metal studs. Provide insulation between studs.
- C. Exterior glass-fiber mat faced and cellulose fiber-reinforced gypsum panels are acceptable exterior sheathing types for masonry veneer wall systems. Paper-surfaced gypsum sheathing will only be permitted when both paper and core are waterproof.
- D. Install vent system in head joints of brick veneer walls, similar to the head joint weep system.
- E. Drainage Requirements.
 1. A cavity drainage system shall be used within cavities of masonry veneer systems.
 2. Cavity flashings shall be fully welded stainless steel and edges shall extend beyond the exterior face of masonry and turned down to form a drip. Termination of flashing behind the exterior face is prohibited.
 3. PVC flashings are prohibited.
 4. Adhered flexible membranes are prohibited.
- F. Use solid brick where cores or frogs would otherwise be exposed.
- G. Consider site conditions and environmental factors when selecting a masonry cleaning process. Provide MSDS sheets to BJC Project Manager for approval.

2.04 SEALANTS

- A. Provide double row of sealant at exterior joints.
- B. Sealant joints shall be installed so as to not block weeping systems.
- C. Sealant color shall match adjacent surfaces and shall be approved by the BJC Director of Design and Project Manager. The following chart indicates general design intent for selecting sealant colors.

Adjoining exterior surfaces		Sealant color
Surface 1	Surface 2	
Masonry wall	Masonry wall	Match predominant mortar color
Masonry wall	Anodized aluminum frame	Match mortar color
Masonry wall	Painted metal frame	Match mortar color
Masonry wall	Metal panel	Match mortar color
Metal panel	Metal panel	Match metal panel color

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.01 GENERAL

- A. An exterior mock-up is required for all projects with new exterior walls. Mock-up will be reviewed for aesthetic purposes as well as for workmanship. An elevation, plan, and section(s) shall be shown in the contract documents. Minimum mock up size shall be 4'-0" width x 8'-0" – coordinate with Project requirements, including testing requirements, if necessary. Coordinate size, configuration of materials, and location of mock-up with Corporate Architect and BJC Project Manager.

PART 4 - PRODUCTS

4.01 GENERAL

- A. Not applicable.

End of B2010 – Exterior Walls

ELEMENT B2020, EXTERIOR WINDOWS

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PART 1 - GENERAL**1.01 OVERVIEW**

- A. Includes windows, curtainwall and storefront systems.

PART 2 - DESIGN CRITERIA**2.01 GENERAL**

- A. Glass shall be insulated, low E type, and shall meet or exceed u-value, solar heat gain coefficient, and gross wall area requirements per ANSI/ASHRAE/IESNA 90.1 and in accordance with all governing codes and regulations.
- B. Aluminum frame finish shall match existing buildings when conditions exist, unless otherwise indicated. When no existing conditions occur, frames shall be anodic coating.
- C. Frames identified as painted finish shall by fluoropolymer coatings and comply with the requirements of AAMA 2604 and 2605. Coating warranty shall be manufacturer's standard to meet or exceed AAMA 2605 (10 years).
- D. Glazing to match existing buildings when conditions exist and unless otherwise indicated.
- E. Window systems shall include four-sided glass capture in aluminum frames using conventional mechanical attachment methods.
- F. If wall construction requires a sill extension at windows, provide aluminum sill extensions to match window frame. Extensions shall be sharp corner extruded aluminum, in lieu of brake metal type.
- G. Sealant joints shall be installed so as to not block weeping systems.
- H. Windows and curtainwall systems shall have sill pans with end dams that extend from the exterior face of the frame and turn up two (2) inches on the interior side.

2.02 CURTAINWALL SYSTEM

- A. Stick-system curtainwall fabrication is acceptable.
- B. Where curtain wall systems are used, engage a qualified building enclosure consultant to assist with developing the design, detailing, and testing parameters.

- C. Frames for curtain wall systems shall thermally-broken unless Project conditions require other frame types.
- D. Glazing panels shall be insulated glass units. Coordinate color options with Director of Design. Coordinate thermal performance with Mechanical Engineer and BJC Corporate Engineer.
- E. Coordinate structural requirements including imposed loading on structural system with Structural Engineer and BJC Project Manager.

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.01 GENERAL

- A. A mock-up shall be required for all projects with new exterior walls. Mock-up will be reviewed for aesthetic purposes and for craftsmanship.
- B. Preconstruction testing may be required including but not limited to water penetration, air infiltration, and structural performance.
- C. Curtainwall manufacturer shall prepare and seal all submittals including shop drawings and calculations.
- D. Include requirements in the contract documents for the following tests to be performed for all curtain wall and storefront assemblies. Perform tests on a minimum 10% (ten percent) of the total number of installed openings. For any one test that does not pass, the contractor shall be responsible to retest after correcting the deficiency and shall be responsible to provide testing for all other openings as directed by the Owner and Architect.
 - 1. Prior to glazed panel/panel installation, perform AAMA 502 “*Voluntary Specification for Field Testing of Newly Installed Fenestration Products*” tests for end dam and sub-sill fastener installation.
 - 2. After installation of glazed panel/panel, perform AAMA 501.2 “*Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems*” tests prior to installation of interior drywall.

PART 4 - PRODUCTS

4.01 GENERAL

- A. Not applicable.

End of B2020 – Exterior Windows

ELEMENT B2030 – EXTERIOR DOORS

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PART 1 - GENERAL**1.01 OVERVIEW**

- A. Includes pedestrian and overhead door types.

PART 2 - DESIGN CRITERIA**2.01 GENERAL**

- A. All door openings in veneer walls shall have proper thru wall flashing and weep system.
- B. Design team shall coordinate door function and door hardware requirements no later than during the design development phase.
- C. All exterior doors with patient access shall require a minimum clear opening dimension of 42”.

2.02 ALUMINUM ENTRANCE SYSTEMS

- A. Aluminum frame finish shall match existing building(s) when conditions exist, unless otherwise indicated. When no existing conditions occur, frames shall be anodic coating.
- B. Glazing to match building(s) when conditions exist and unless otherwise indicated.

2.03 EXTERIOR HOLLOW METAL DOORS AND FRAMES

- A. Fabricate doors and frames from cold-rolled steel sheet, hot-rolled steel sheet is not permitted.
- B. Doors shall be constructed of 0.053 inch (16 gauge) steel sheet minimum unless otherwise directed.
- C. Doors and frames shall factory primed and field painted.
- D. For exterior doors and frames located in areas exposed to public view, requiring a more durable finish or enhanced protection, steel shall be hot-dipped with a zinc-alloy-iron coating (galvannealed). For all other conditions, steel sheet shall be hot dipped with a zinc coating (galvanized).

- E. All frames will be manufactured with mitered corners and a full profile weld. Knock-down type frames are not permitted.
- F. Do not grout or spot grout internal cavity of door frames unless otherwise directed. Grouting will only be permitted when frames are required to meet high level security requirements and then all interior surfaces of the frame must be coated with cold-applied asphaltic mastic.
- G. Factory prepared doors and frames to receive hardware, security, and fire alarm devices.

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.01 GENERAL

- A. Not applicable.

PART 4 - PRODUCTS

4.01 GENERAL

- A. Not applicable.

End of B2030 – Exterior Doors

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RESPONSIBILITY MATRIX

The following matrix identifies those individuals, roles or departments responsible for maintaining the accuracy of the information and those responsible for providing input. Refer to Preface for detailed explanation.

	BJC HealthCare													Hospital/Entity				
	PD&C						Clinical Asset Management (CAM)	Risk Management	Real Estate	Ergonomics	Infection Prevention (IP)	Info Systems, Data, Telecom (IS)	Other:	Standards Review Committee	Facilities Engineering	Housekeeping	Security	Other:
	Corporate Architect	Corporate Engineer	Director of Planning	Director of Design	Director of Construction	Other:												
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DOCUMENT REVISION HISTORY

The following table indicates the date the document originated and any subsequent revisions.

203.202 – Building Shell, Exterior Enclosure		
Issue	Description of Issue	Prepared by
2012 v1	Original Issue	G. Zipfel
2012 v2	Miscellaneous Review/Clarifications	G. Zipfel/B. Temple
2016 v1	reissued	G. Zipfel
2018 v1	Combined documents and renamed as 203.202	G. Zipfel